brother

FACSIMILE EQUIPMENT

SERVICE MANUAL

MODEL: MFC9100C/MFC760

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Specifications are subject to change without notice.

PREFACE

This publication is a Service Manual covering the specifications, construction, theory of operation, and maintenance of the Brother facsimile equipment. It includes information required for field troubleshooting and repair--disassembly, reassembly, and lubrication--so that service personnel will be able to understand equipment function, to rapidly repair the equipment and order any necessary spare parts.

To perform appropriate maintenance so that the facsimile equipment is always in best condition for the customer, the service personnel must adequately understand and apply this manual.

This manual is made up of six chapters and appendices.

CHAPTER I. GENERAL DESCRIPTION

CHAPTER II. INSTALLATION

CHAPTER III. THEORY OF OPERATION

CHAPTER IV. DISASSEMBLY/REASSEMBLY, LUBRICATION AND ADJUSTMENT

CHAPTER V. MAINTENANCE MODE

CHAPTER VI. ERROR INDICATION AND TROUBLESHOOTING

Appendix 1. EEPROM Customizing Codes

Appendix 2. Circuit Diagrams

This manual describes the model and its versions to be destined for major countries. The specifications and functions are subject to change depending upon each destination.

CHAPTER I.

GENERAL DESCRIPTION

CHAPTER I. GENERAL DESCRIPTION

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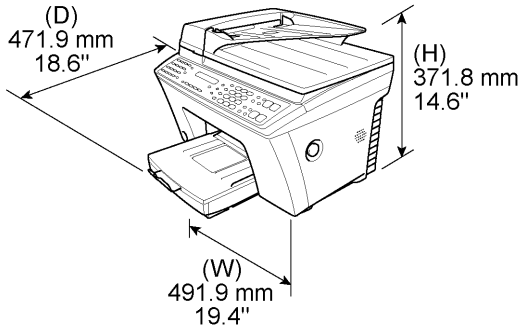
1. EQUIPMENT OUTLINE

1.1 External Appearance and Weight

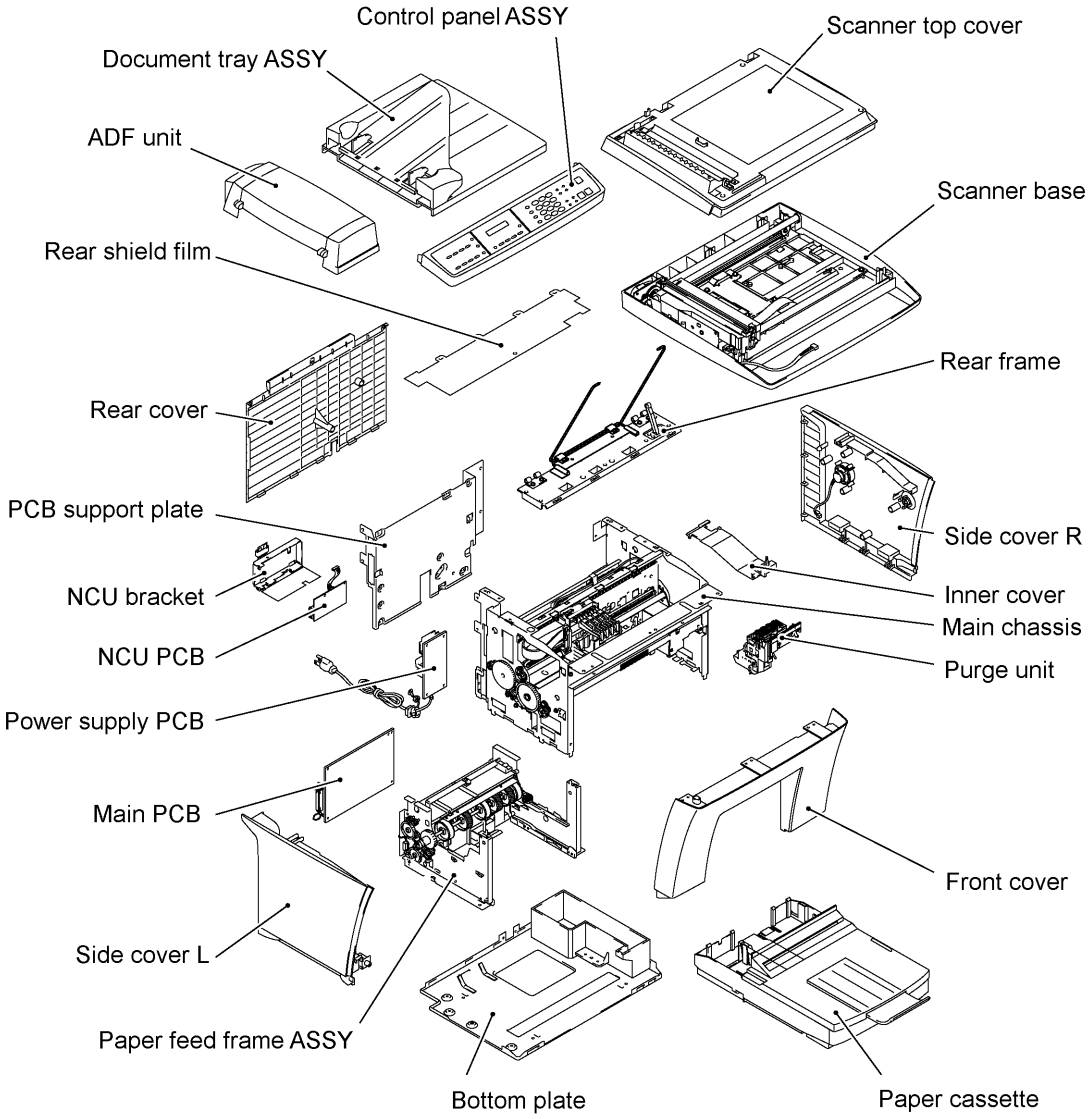
The figure below shows the equipment appearance and approximate dimensions.



Weight:	Machine proper	Approx. 16 kg (36 lb.)
	In package	Approx. 20 kg (44 lb.)

1.2 Components

The equipment consists of the following major components:



2. SPECIFICATIONS

(1/4)

MODEL	MFC9100C	MFC760
GENERAL		
Print Engine	BY2	BY2
Modem Speed (bps)	14.400	14.400
Transmission Speed (sec)	6	6
ITU-T Group	G3	G3
Coding Method	MH/MR/MMR	MH/MR/MMR
Input/Output Width	8.5"/8.5"	8.5"/8.5"
ADF (pages)	50	50
LCD Size	16 x 2	16 x 2
On-Screen Programming	Yes	Yes
Backup Clock	1 hour	1 hour
Memory Capacity	8 MB	8 MB
Backup Memory	N/A	N/A
Optional Memory	N/A	N/A
Color	New Color	New Color
Standby Mode	N/A	N/A
PC-Fax Protocol Compliance	Class 1, 2	Class 1,2
Simultaneous Operation	Yes (Print/Fax, Print/Copy, Print/Scan)	Yes (Print/Fax, Print/Copy, Print/Scan)
Data Modem	N/A	N/A
Energy Star Compliance	Yes	Yes
TELEPHONE		
Automatic Redial	Yes	Yes
Handset	N/A	N/A
One-Touch Dial	16	16
Speed Dial	100	100
Telephone Index	Yes	Yes
Speaker Phone	N/A	N/A
Chain Dialing	Yes	Yes
Caller ID	Yes	N/A
Call Waiting Caller ID	N/A	N/A
Distinctive Ringing	Yes	Yes for UK
Hold/Mute Key	N/A	N/A
Junk Call Barrier	N/A	N/A
Power Failure Dialing	N/A	N/A
Ringer Volume	Yes (3 levels + OFF)	Yes (3 levels + OFF)
PBX Feature	No	No
Transfer Method	Flash	Flash
Digits of One-Touch & Speed Dial	20 digits	20 digits
Registrable Number of Characters	15 chars	15 chars
FAX		
Internet FAX	Yes (Netcentric)	Yes (WordCraft)
Easy Receive/Fax Detect	Yes	Yes
Fax/Tel Switch	N/A	N/A
Super Fine	Yes	Yes
300 dpi Transmission	N/A	N/A

MODEL	MFC9100C	MFC760
Gray Scale	256	256
Contrast	Text (Light/Normal/Dark), Photo	Text (Light/Normal/Dark), Photo
Smoothing	N/A	N/A
Call Reservation	N/A	N/A
Password Check	N/A	N/A
Enhanced Remote Activation	Yes	Yes
Multi-Resolution Transmission	Yes	Yes
Multi Transmission	N/A	N/A
Next-Fax Reservation	Yes (= DUAL ACCESS)	Yes (= DUAL ACCESS)
Delayed Timer	Yes (Up to 50 timers or 50 jobs)	Yes (Up to 50 timers or 50 jobs)
Polling	Yes (Std/Seq)	Yes (Std/Del/Seq/Sec)
Quick Scan (Memory Transmission)	Yes (Super/3 sec.) - 590 pages x 11K	Yes (Super/3 sec.) - 590pages x 11K
Broadcasting	Yes (166 locations)	Yes (166 locations)
Batch Transmission	N/A	N/A
Auto Reduction	Yes	Yes
Out-of-Paper Reception	Yes (600 pages x 11K)	Yes (600 pages x 11K)
Dual Access	Yes	Yes
ECM (Error Correction Mode)	Yes	Yes
ITU SUB Addressing	N/A	N/A
LIST/REPORT		
Activity Report/Journal Report	Yes	Yes
Transmission Verification Report	Yes	Yes
Coverpage	Yes (Super)	Yes (Super)
Help List	Yes	Yes
Callback Message	No	No
Caller ID List	Yes	No
INTERFACE		
External TAD Interface	Yes	Yes
Missing Link/PC Interface	No	No
Printer Interface	Yes (Parallel)	Yes (Parallel)
COLOR		
BFT Compatible	Yes	Yes
Color Fax Mode	No	No
PRINTER		
Color/Mono	Color	Color
Engine Type	Piezo inkjet	Piezo inkjet
Resolution (dpi)	1440 x 720, 720 x 720, 360 x 360, 360 x 180	1440 x 720, 720 x 720, 360 x 360, 360 x 180
Speed (ppm)	Mono: Up to 7 (360 x 180) Color: Up to 4 (360 x 180)	Mono: Up to 7 (360 x 180) Color: Up to 4 (360 x 180)
Paper Capacity (sheets)	250	250
Optional Paper Capacity (sheets)	N/A	N/A
Standard Print Language	GDI	GDI
Emulation	Windows GDI, EPSON ESC/P	Windows GDI, EPSON ESC/P
Resident Fonts	1 (10, 12, 15 cpi and Ps for each font)	1 (10, 12, 15 cpi and Ps for each font)
Fonts Disk Based	35	35
Paper Handling Size	LTR, LGL, A4, B5, A5, A6 CM10, DL, C5, C6, B5	LTR, LGL, A4, B5, A5, A6 CM10, DL, C5, C6, B5

MODEL	MFC9100C	MFC760
Paper Cassette	Cut sheet: Min.2.75" (W) x 5.0" (L) Max. 8.5" (W) x 14.0" (L) Envelop (BL/C5/CM10/Mona) Output paper : 100 sheets	Cut sheet: Min.2.75" (W) x 5.0" (L) Max. 8.5" (W) x 14.0" (L) Envelop (BL/C5/CM10/Mona) Output paper : 100 sheets
Printer Driver	Windows 3.1/3.11/95/98/NT4.0 with auto installer program	Windows 3.1/3.11/95/98/NT4.0
Utility Software	Brother Resource Manager	Brother Resource Manager
Photo Realistic Print	N/A	N/A
Ink Cartridge Life (Black)	750 pages (5% duty)	750 pages (5% duty)
Ink Cartridge Life (Color)	400 pages (5% duty for each color)	400 pages (5% duty for each color)
Ink Cartridge Life (Photo)	N/A	N/A
Interface Type	Parallel (IEEE1284)	Parallel (IEEE1284)
Bundled Cable	Parallel	Option
Network	Option (Pony)	Option (Pony)
COPY		
Color	Yes	Yes
Speed (ppm)	Color: 4 ppm, Mono: 5 ppm	Color: 4 ppm, Mono: 5 ppm
Multi Copy	Yes (Mono: 99 pages/Color: 99 pages)	Yes (Mono:99 pages/Color:99 pages)
Sort	Yes	Yes
Reduction/Enlargement	Yes (25% to 400%)	Yes (25% to 400%)
Resolution (dpi)	Color: Max. 1440 x 720 Min. 360 x 180 Mono: Max. 720 x 720 Min. 360 x 180	Color: Max. 1440 x 720 Min. 360 x 180 Mono: Max. 720 x 720 Min. 360 x 180
SCANNER		
Color/Mono	Color/Mono	Color/Mono
Resolution (dpi)	300 x 300 (Opt.)/1200 x 1200 (Int.)	300 x 300 (Opt.)/1200 x 1200 (Int.)
Gray Scale	256	256
TWAIN Compliant	Yes	Yes
Formats (Import)	TIFF, UniDoc, PCX, DCX	TIFF, UniDoc, PCX, DCX
Formats (Export)	TIFF, UniDoc, PCX, DCX	TIFF, UniDoc, PCX, DCX
OCR	Yes (Xerox TextBridge)	Yes (Xerox TextBridge)
MESSAGE CENTER / MESSAGE MANAGER		
ICM Recording Time	No	No
Page Memory (Out-of-Paper Reception)	600 pages x 11K	600 pages x 11K
OGM (MC/MC Pro/Paging/F/T)	No	No
TAD Type	No	No
Memo/Recording Conversation	No	No
Fax Forwarding	Yes	Yes
Fax Retrieval	Yes	Yes
Paging	Yes	No
Remote Access	Yes	Yes
Toll Saver	No	No
MESSAGE CENTER PRO/MESSAGE MANAGER PRO		
Fax & Voice Mail Box	No	No
Fax- & Voice-on-Demand	No	No

MODEL	MFC9100C	MFC760
MESSAGE CENTER (PC MC)		
Fax Forwarding	No	No
Paging	No	No
ICM Recording Time	No	No
OGM MC/MC Pro/Paging	No	No
Fax & Voice Mail Box	No	No
Fax- & Voice-on-Demand	No	No
VIDEO CAPTURE		
Video Capture	Yes	Yes
Video Print	Yes	Yes
Video Format	NTSC	PAL
BUNDLED SOFTWARE		
PC Fax	SMSI	WordCraft
Viewer	Visioneer	WordCraft
Printer Driver	Brother	Brother
Others	Auto E-mail printing Netcentric (PC Internet Fax) 3D Fax Speed (PC Color Fax) Corel Print & Photo House	Auto E-mail printing
ACCESSORY		
Cartridges	Black cartridge Cyan cartridge Magenta cartridge Yellow cartridge	Black cartridge Cyan cartridge Magenta cartridge Yellow cartridge
Paper Type	BP36CL (720 dpi high-quality coated paper) BP72CL (720 dpi high-quality coated paper) BPGLL (Glossy paper) BPTRL (Transparencies)	BP36CA (360 dpi high-quality coated paper) BP72CA(720 dpi high-quality coated paper) BPGLA(Glossy paper) BPTRA(Transparencies)

CHAPTER II.

INSTALLATION

CHAPTER II. INSTALLATION

CONTENTS

1. INSTALLING THE UPDATE DATA TO THE FACSIMILE EQUIPMENT..... II-1

1. INSTALLING THE UPDATE DATA TO THE FACSIMILE EQUIPMENT

If the program version is updated or the main PCB is replaced, install the update program onto the flash ROM of the main PCB.

The program installation requires a PC/AT-compatible computer (which is capable of running MS-DOS or its compatible OS).

Connecting the facsimile equipment to your computer

(1) Make sure that the equipment's power cord is unplugged from a wall socket.

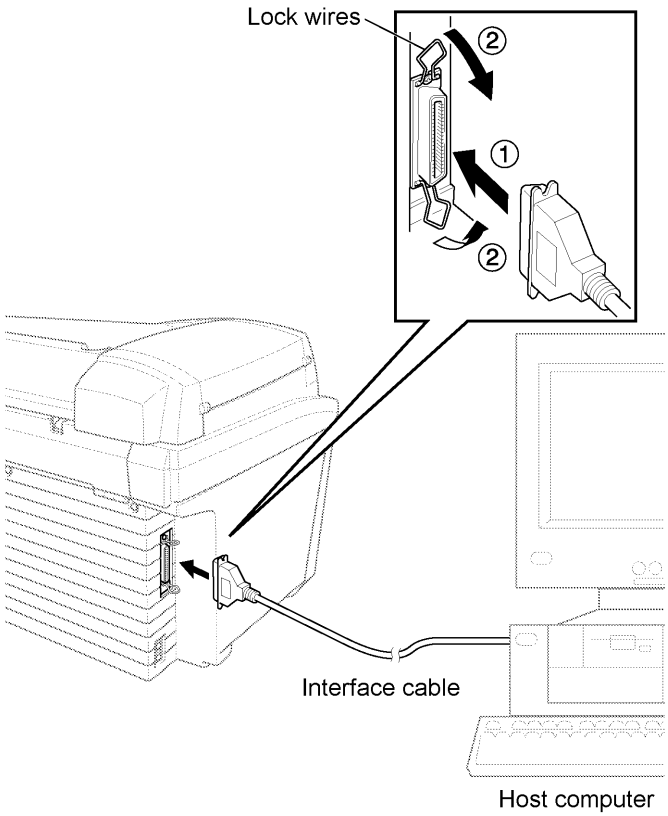
(2) Make sure that your computer is powered off.

(3) Connect the interface cable to the parallel interface port on the left side of the equipment and secure it with the lock wires.

(4) Connect the other end of the interface cable to the printer port of your computer and secure it with the two screws.

(5) Power on your computer.

(6) Plug the equipment's power cord into a wall socket.



Installing the update data onto the flash ROM of the facsimile equipment

(1) Copy the update data and transfer utility onto the desired directory of the hard disk.
e.g., C:\UPDATE

(2) Click the Start button, point to Programs, and then click MS-DOS Prompt to open an MS-DOS window.

(3) Type the drive letter where the update data and transfer utility are located. In the above example, type C: from the command line and press the **ENTER** key.

Then type CD UPDATE and press the **ENTER** key.

(4) Check that your computer is connected with the facsimile equipment correctly.

(5) To start the transfer utility transmitting the update data to the flash ROM of the facsimile equipment, type the following:

`ICEN` *`filename`* `/b`

Then press the **ENTER** key.

The equipment beeps and shows the "CONNECTING" on the LCD for one second.

Then, the equipment shows the "DOWNLOADING" on the LCD and starts receiving data downloaded from the host computer.

During downloading, the equipment beeps *intermittently*.

Upon completion of the downloading, the equipment beeps *continuously*.

CHAPTER III.

THEORY OF OPERATION

CHAPTER III. THEORY OF OPERATION

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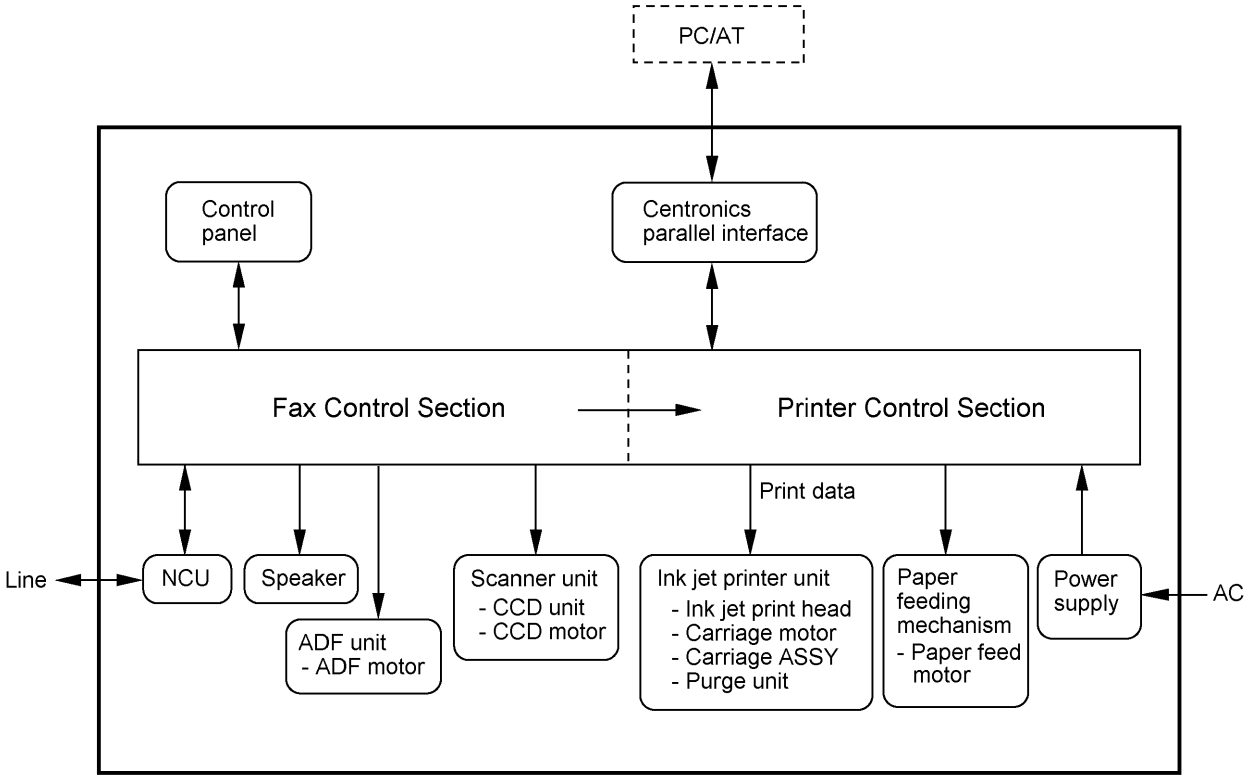
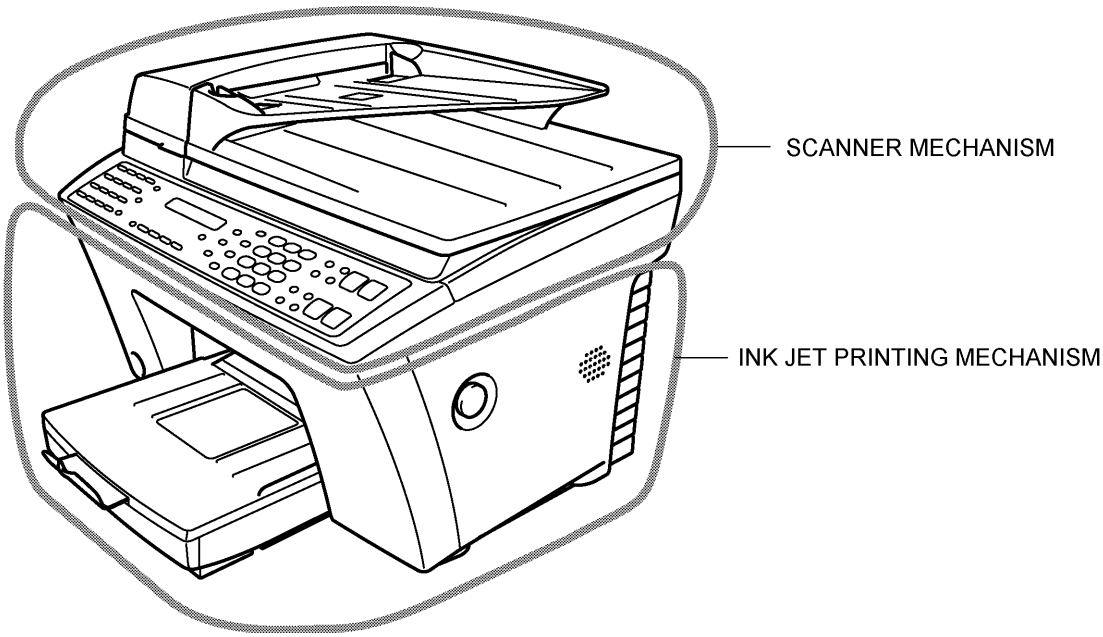
1. OVERVIEW


PC/AT
Control panel
Centronics parallel interface
Fax Control Section
Printer Control Section
Print data
Line
NCU
Speaker
ADF unit
- ADF motor
Scanner unit
- CCD unit
- CCD motor
Ink jet printer unit
- Ink jet print head
- Carriage motor
- Carriage ASSY
- Purge unit
Paper feeding mechanism
- Paper feed motor
Power supply
AC

2. MECHANISMS

The equipment is classified into the following mechanisms:

- **n** SCANNER MECHANISM
  - – ADF mechanism
  - – Document scanning mechanism
- **n** INK JET PRINTING MECHANISM
  - – Paper pick-up, registration, feeding, and ejecting mechanisms
  - – Ink jet printing and head capping mechanisms
  - – Purging mechanism
  - – Carriage drive mechanism
- **n** SENSORS AND ACTUATORS

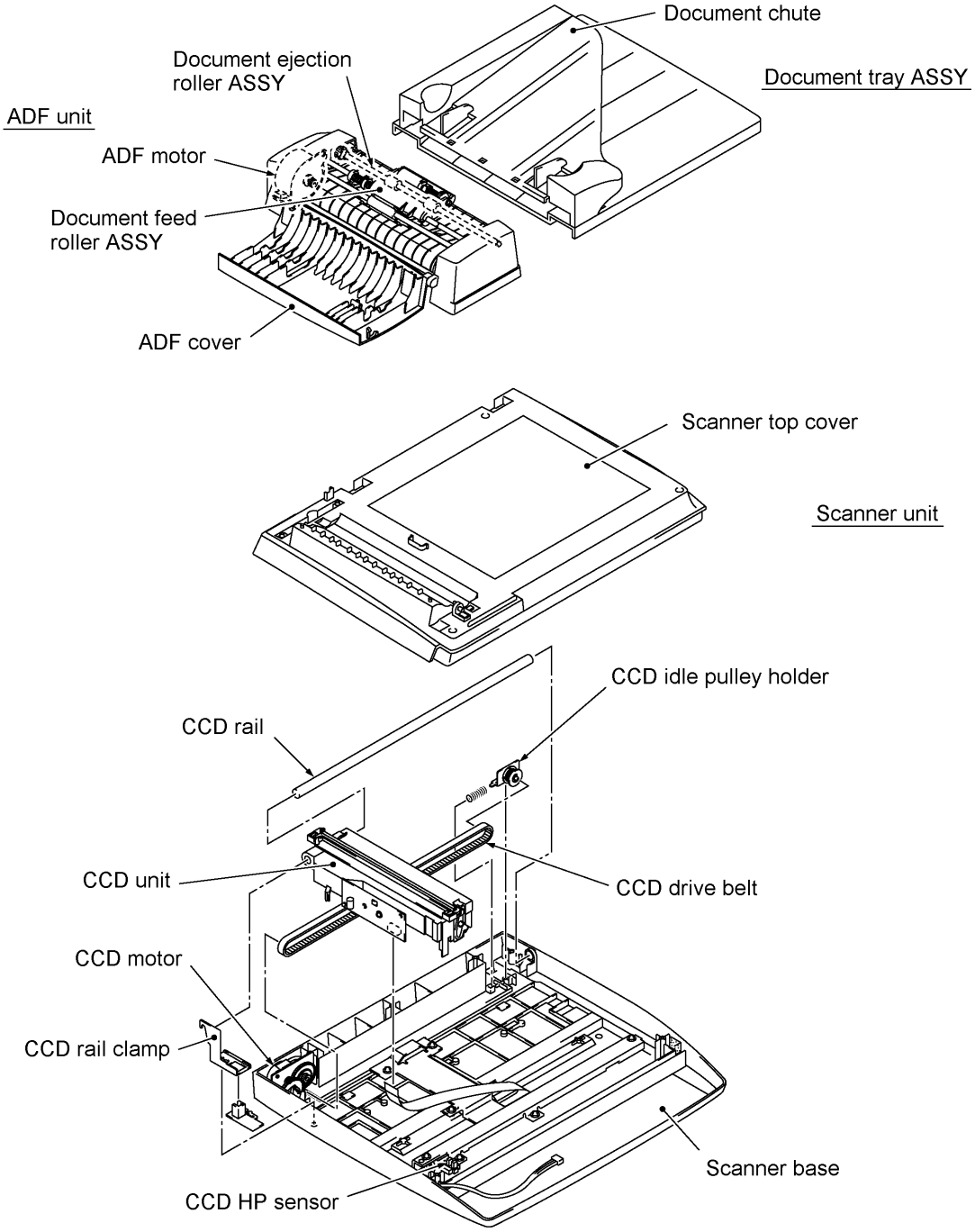


2.1 Scanner Mechanism

This mechanism consists of the following:

- document tray ASSY which consists of a document chute and document tray,
- automatic document feeder (ADF) unit which consists of a document feed roller ASSY, document ejection roller ASSY, ADF motor, and document front and rear sensors, and
- scanner unit which consists of a scanner top cover, CCD unit, CCD drive mechanism, CCD HP sensor, and scanner base.

For details about the sensors, refer to Section 2.3.



This scanner mechanism supports a dual scanning system.

(1) If you set documents with their faces up on the document chute and start the scanning operation, the ADF motor rotates so that the document feed roller ASSY feeds those documents into the ADF unit, starting from the bottom sheet to the top, page by page. Each document curves downwards and turns to the right so as to advance above the CCD unit, and then it is fed out to the document tray with the document ejection roller ASSY.

    This way, documents move above the CCD unit being kept in a stationary position.

(2) If you open the scanner unit, put a sheet of document (or put a bound book opened) on the glass of the scanner top cover, close the scanner unit, and start the scanning operation, then the CCD drive mechanism will be driven. That is, the CCD motor rotates and its rotation will be transmitted via the gear train to the CCD drive belt.

    The CCD unit, which is supported and guided by the CCD rail, is secured to the CCD drive belt. Clockwise and counterclockwise rotations of the CCD motor move the CCD unit to the right and left, respectively.

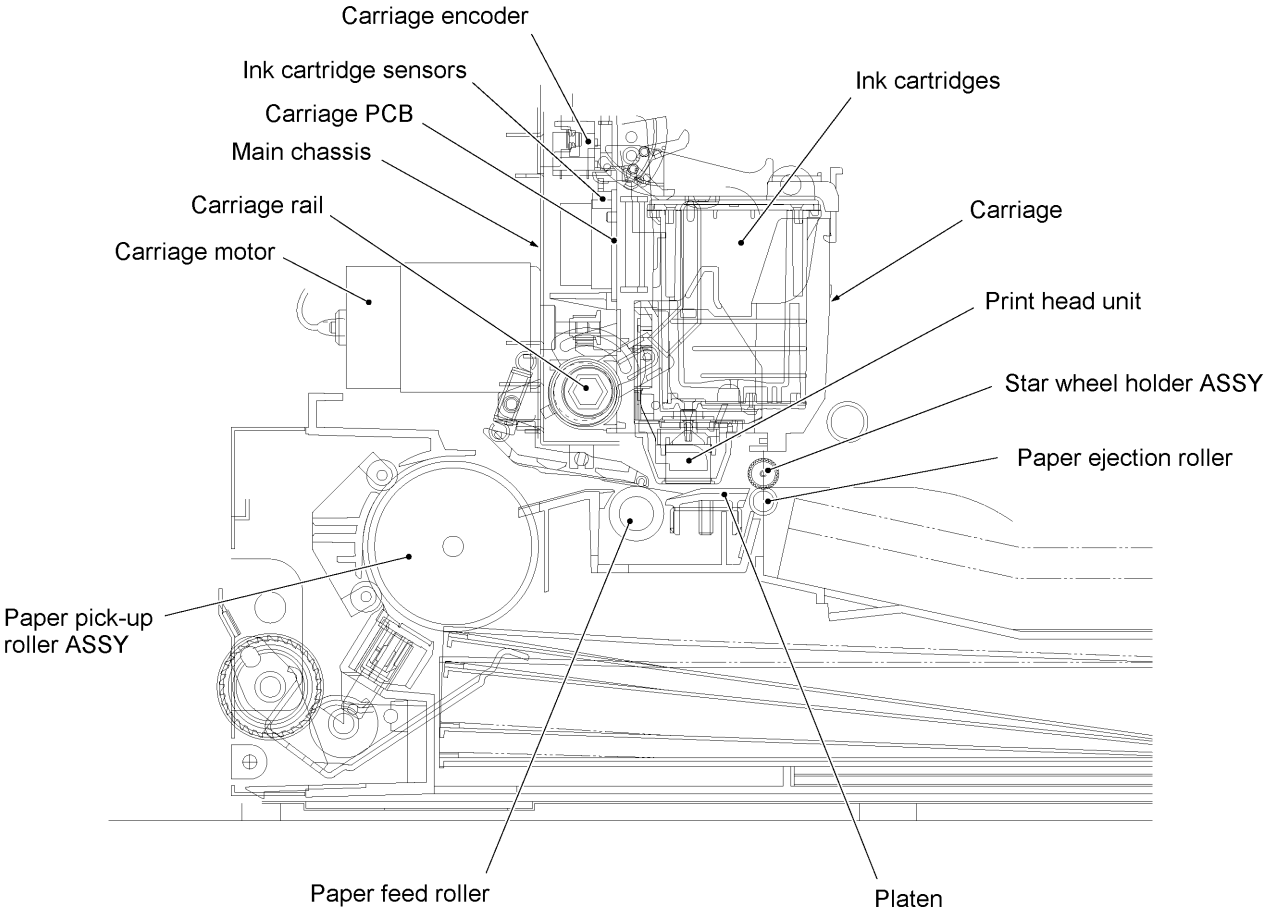
    In this scanning system, the CCD unit moves horizontally beneath a document being kept in stationary position.

The CCD unit contains a charge coupled device (CCD) image sensor. The cold-cathode fluorescent lamp illuminates a document and the reflected light of the scanned image data is transmitted via the mirrors into the lens which reduces the scanned data so as to form the image on the CCD.

2.2 Ink Jet Printing Mechanism

2.2.1 Paper pick-up, registration, feeding, and ejecting mechanisms

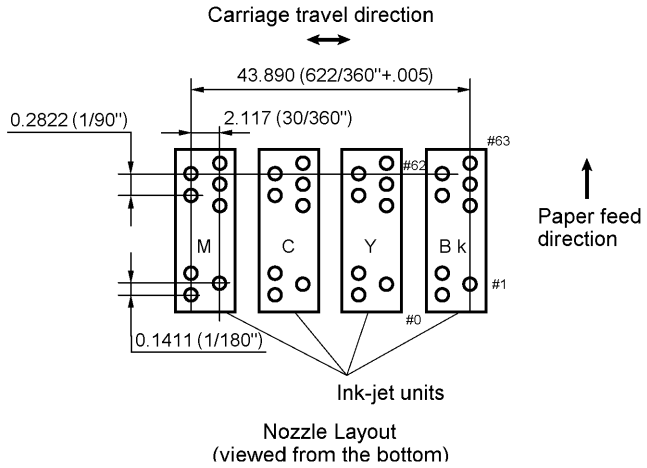
The paper pick-up, registration, feeding, and ejecting mechanisms are driven by a single paper feed motor.



2.2.2 Ink jet printing and capping mechanisms

(1) Print head

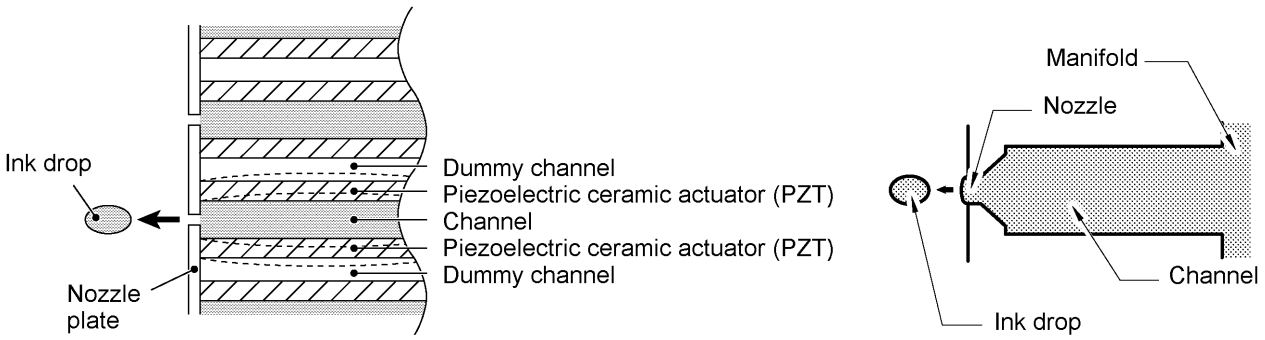
This equipment uses drop-on-demand ink jet printing. The print head has four ink-jet units for four color inks, each of which consists of 64 nozzles, 64 channels sandwiched by a pair of piezoelectric ceramic actuators (PZT), manifold, and filter.



If a drive voltage* is applied to the electrodes formed on the surface of the piezoelectric actuators, those actuators will be distorted as shown with broken lines in the illustration given below so that the ink in the manifold will be vacuumed out to the channel.

(*The controller switches the drive voltage between 28 levels within 13.7V to 29.4V ±3% depending upon the ambient temperature detected by the head thermistor.)

If deenergized, the piezoelectric actuators return to the previous form so as to apply pressure to the ink in the channel, causing the ink to jet out through the nozzle. The jetted-out ink drop will be splashed and produce a dot on paper held by the platen.



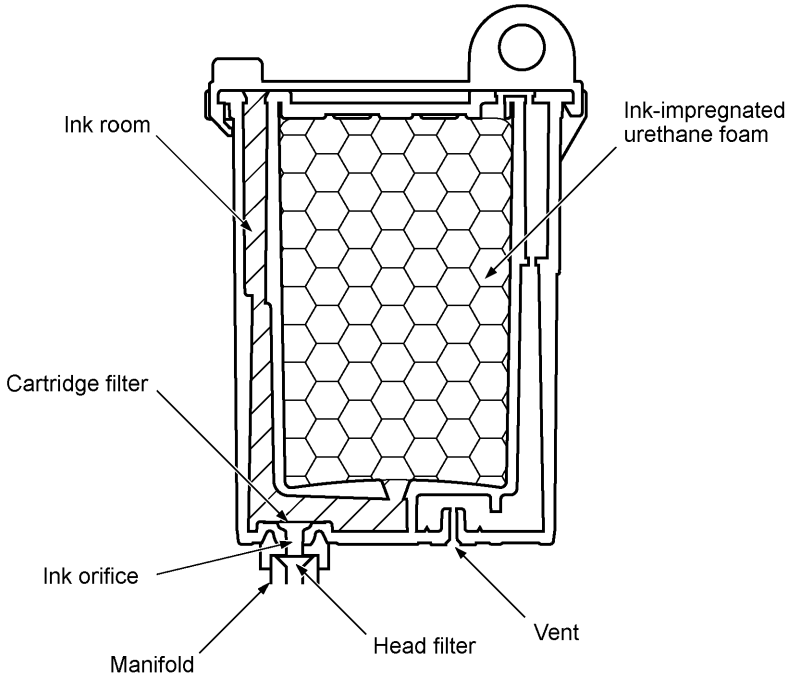
As the carriage holding the print head travels at the printing speed, the character generator sends print command pulses to the circuits driving the piezoelectric actuators embedded in the print head.

For the head thermistor and the head property EEPROM, refer to Section 2.3.

(2) Ink cartridge

The equipment uses four ink cartridges (black, yellow, cyan, and magenta) of disposable type to supply ink to the print head. As shown below, an ink cartridge contains an ink-impregnated urethane foam. If ink-jet print operation or purging operation takes place, ink comes out of the urethane foam and is supplied to the print head through the ink room, filters, and manifold.

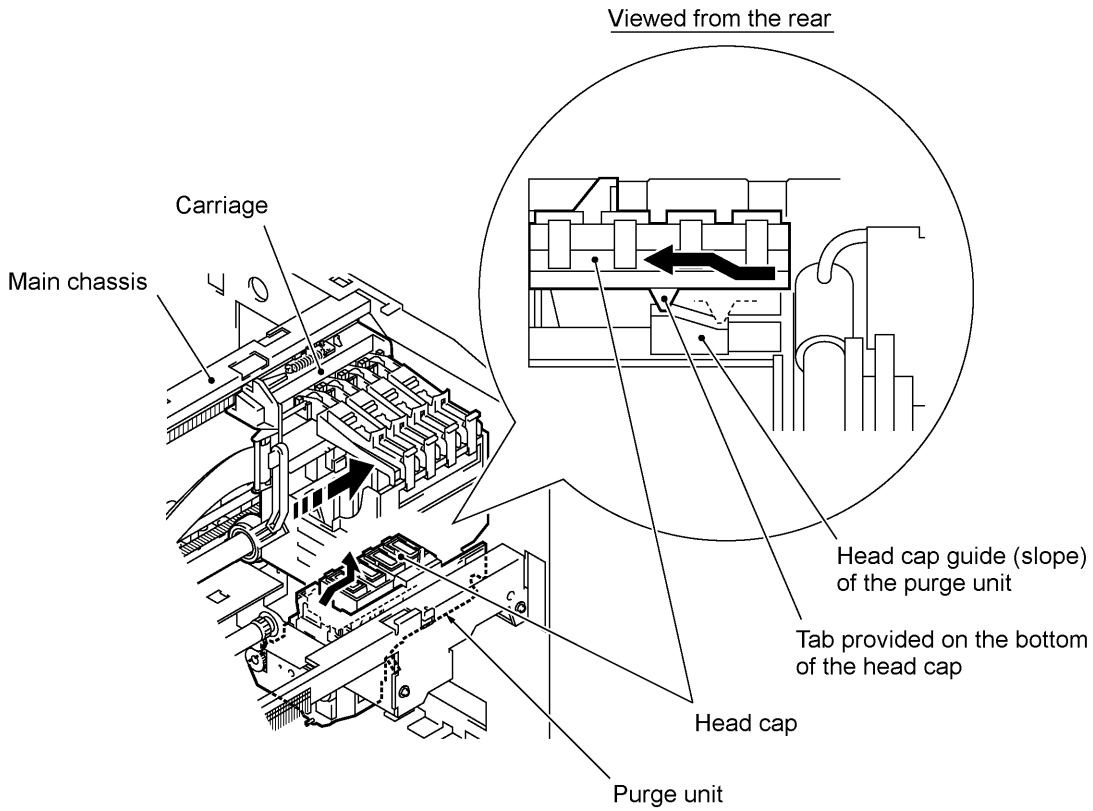
For the ink cartridge sensors on the carriage PCB, refer to Section 2.3.



(3) Head cap

Shown below is a head cap which prevents the nozzles of the print head from drying up when they are not in use.

Upon completion of printing, the carriage travels to the right and moves the head cap provided on the purge unit together. On the bottom of the head cap is a tab which is lead by the head cap guide of the purge unit. Accordingly, the rightward movement brings the head cap up to the position where the head cap comes into tight contact with the print head so as to cap the nozzles.


Viewed from the rear
Carriage
Main chassis
Head cap guide (slope) of the purge unit
Tab provided on the bottom of the head cap
Head cap
Purge unit

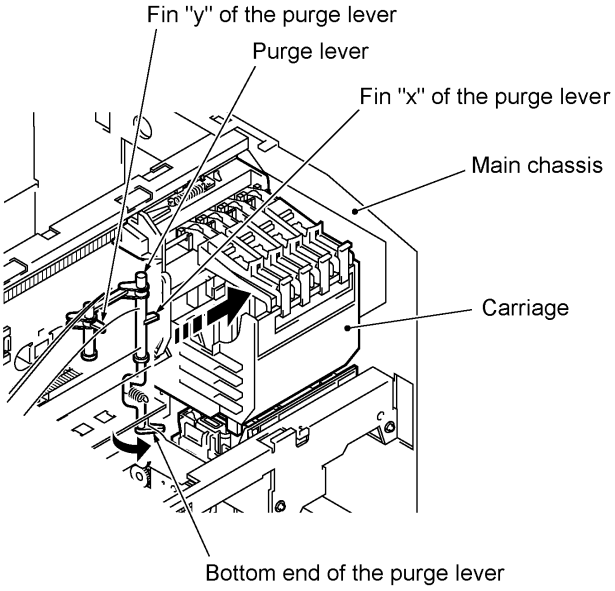
2.2.3 Purging mechanism

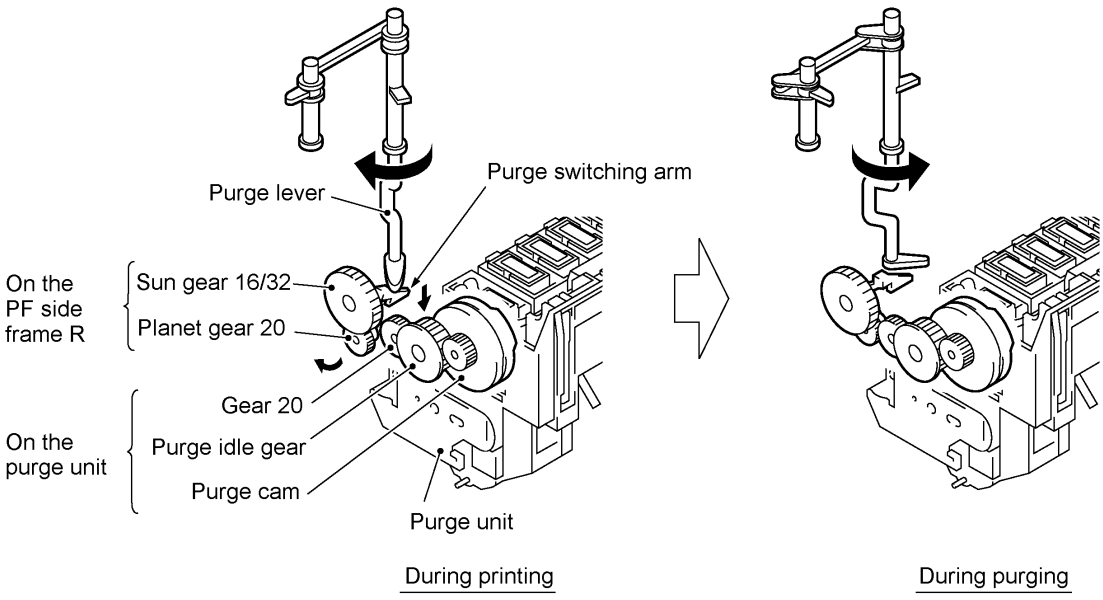
The purging mechanism is driven by the paper feed motor located at the left side of the main chassis. The rotation of the paper feed motor is transmitted to the paper feed roller. At the right end of the paper feed roller, the rotational torque is further transmitted via the arm 12.3 ASSY located on the main chassis to the gear train (including the sun gear 16/32 and planet gear 20) on the PF side frame R.

If the carriage travels from the left to right to reach the purge position, the lower left tab provided on the back of the carriage turns fin "x" of the purge lever counterclockwise (when viewed from the top), so the bottom end of the purge lever releases the purge switching arm. Accordingly, the planet gear 20 will be engaged with the gear 20 and the rotational torque of the paper feed motor will drive the purge cam.

On the contrary, if the carriage travels from the purge position to the left, the upper right tab on the back of the carriage turns fin "y" of the purge lever clockwise. The purge lever's bottom end pushes down the purge switching arm so that the planet gear 20 will be disengaged from the gear 20. The sun gear 16/32 will simple idle.

That is, when the carriage is in printing operation or the purge cam is in the home position, no rotation of the paper feed motor is transmitted to the purge gear train; when the carriage is in the purge position, the motor rotation is transmitted to the purge gear train which rotates the purge cam.





The purge cam is so designed that:

- the carriage lock pops out to lock the carriage before purging and pops in before cleaning with the wiper,
- the purge cap comes out and becomes pressed against the nozzle ends of an ink-jet unit,
- the pump works to draw out ink from the head nozzles and drains it into the ink absorbers, and
- the head wiper comes out to clean the nozzle surface.

A sequence of the above operations is carried out by one rotation of the purge cam. The home position of the purge cam is detected by the HP switch. For the purge cam HP switch, refer to Section 2.3.

(1) Carriage lock

If the purge cam is driven, the carriage lock of the purge unit pops out and locks the carriage to align a particular ink-jet unit with the purge cap during purging operation. After purging but before cleaning with the wiper, it pops in to release the carriage. When the power is off, the carriage lock keeps the print head pressed against the head cap.

(2) Pressing the purge cap against the nozzle ends

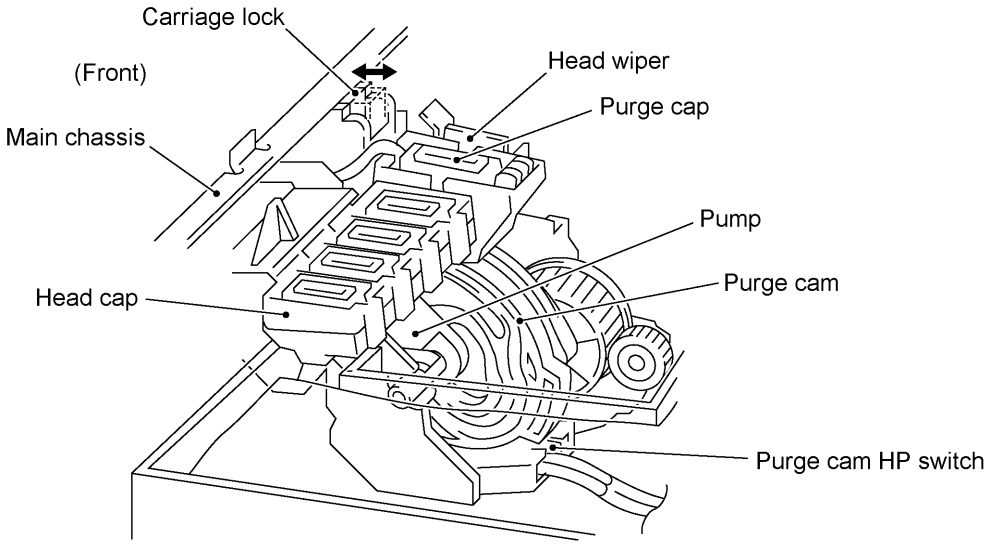
The purge cap comes out and becomes pressed against the nozzle ends of an ink-jet unit.

(3) Purging

If activated, the pump draws out ink from the head nozzles and drains it into the ink absorbers to remove air bubbles or dust from the inside of the nozzles and channels.

(4) Cleaning with the head wiper

After purging operation, the wiper comes out and the carriage moves from the right to left so as to clean ink remaining on the head surface.

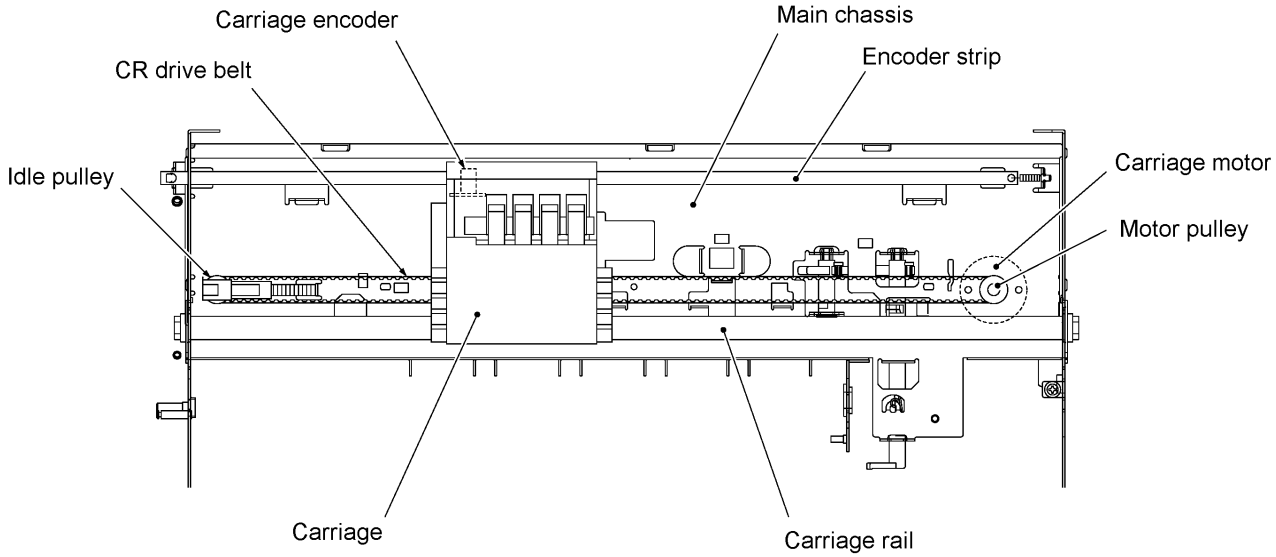


2.2.4 Carriage drive mechanism

The carriage motor controls horizontal motion. The motor rotation is transmitted via the motor pulley to the CR drive belt.

The carriage, which is supported and guided by the carriage rail, is secured to the CR drive belt. Clockwise and counterclockwise rotations of the carriage motor move the carriage to the right and left, respectively.

On the back of the carriage is the carriage encoder which tells the control circuitry the current carriage position counted based on the carriage home position by using the encoder strip attached to the main chassis.



2.3 Sensors and Actuators

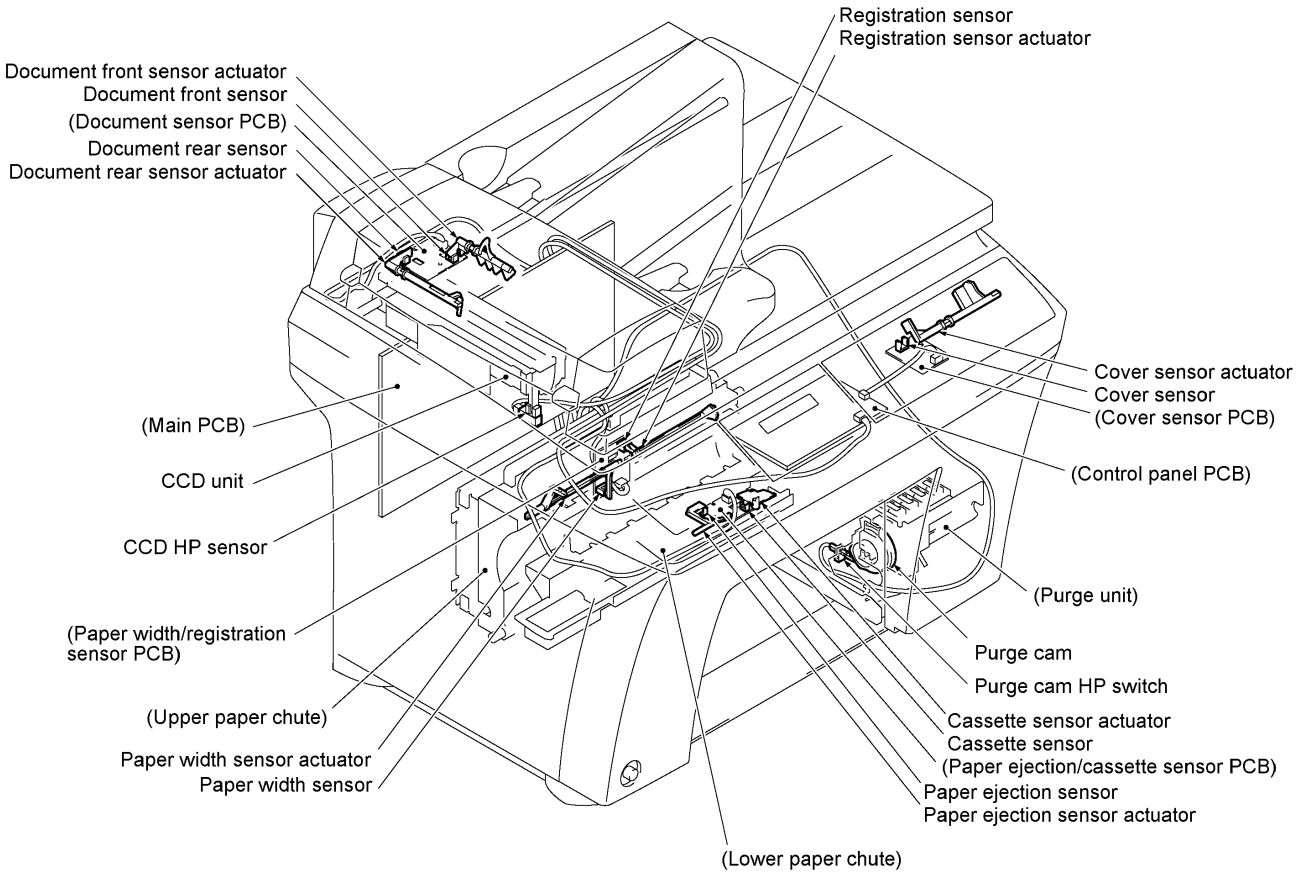
This equipment has the following sensors and thermistor.

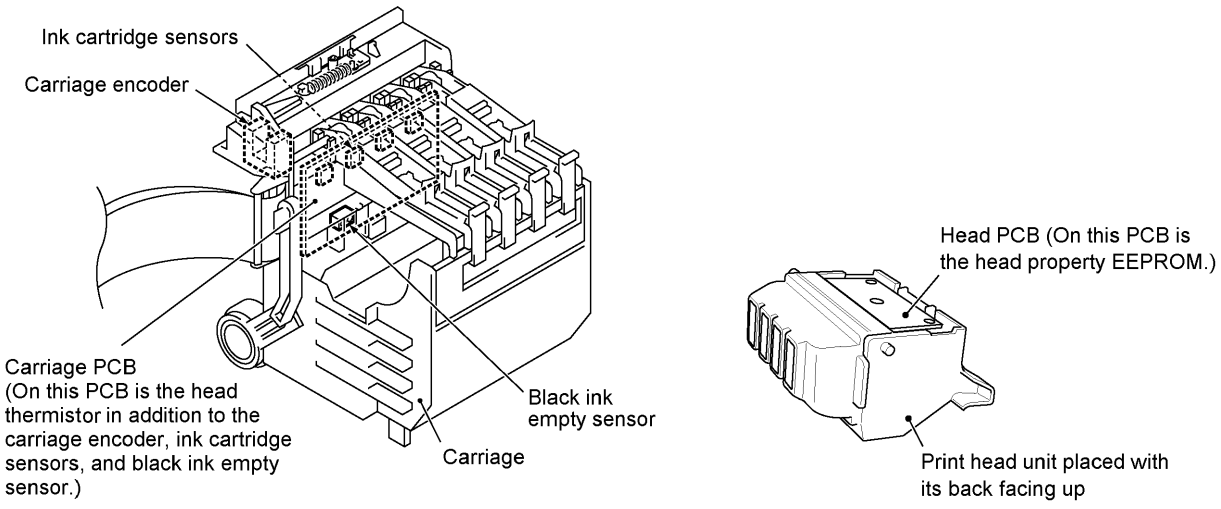
Sensor name	Type	Located on
Document front sensor Document rear sensor	Photosensor	Document sensor PCB
Cover sensor	Photosensor	Cover sensor PCB on the scanner base
CCD HP sensor	Photosensor	Scanner base
Registration sensor Paper width sensor	Photosensor	Paper width/registration sensor PCB on the upper paper chute
Paper ejection sensor Cassette sensor	Photosensor	Paper ejection/cassette sensor PCB on the lower paper chute
Ink cartridge sensors Black ink empty sensor Carriage encoder	Mechanical switches Photosensor Photosensor	Carriage PCB Carriage PCB Carriage PCB
Head thermistor Head property EEPROM	Thermistor —	Carriage PCB Print head unit (Head PCB)
Purge cam HP switch	Mechanical switch	Purge cam (→Main PCB)

- Document front sensor which detects the presence of documents.
- Document rear sensor which detects the leading and trailing edges of pages to tell the control circuitry when the leading edge of a new page has reached the starting position and when the scan for that page is over.
- Cover sensor which detects whether the scanner unit is closed.
- CCD HP sensor which detects whether the CCD unit is in the home position.
- Registration sensor which detects the leading and trailing edges of paper, which allows the controller to determine the registration timing.
- Paper width sensor which detects whether the paper width is A4-size or wider.
- Paper ejection sensor which detects whether the paper goes out of the equipment.
- Cassette sensor which detects whether the paper cassette is loaded.
- Ink cartridge sensors, each of which detects whether an ink cartridge is loaded.
- Black ink empty sensor which detects whether the black ink cartridge is empty.
- Carriage encoder which detects the current carriage position and carriage travel speed. If the carriage travel speed varies abnormally, the controller regards it as a paper jam.

- Head thermistor which allows the controller to control the temperature of the print head. According to the change of the thermistor's internal resistance monitored, the control circuitry regulates the drive voltage applied to the head's piezoelectric ceramic actuators since the viscosity of the ink varies depending upon the temperature. If the head thermistor detects 5.5°C or below, or 48°C or higher after two hours of powering-on state, the equipment stops printing and stores print data into the DRAM.
- Head property EEPROM which stores the head property information. If you set the print head unit on the carriage, the control circuitry on the main PCB reads the information and regulates the drive voltage applied to the head's piezoelectric ceramic actuators.
- Purge cam HP switch which detects whether the purge cam is in the home position.

The above photosensors are a photointerrupter consisting of a light-emitting diode and a light-sensitive transistor. Each of them has an actuator separately arranged as shown on the next page.



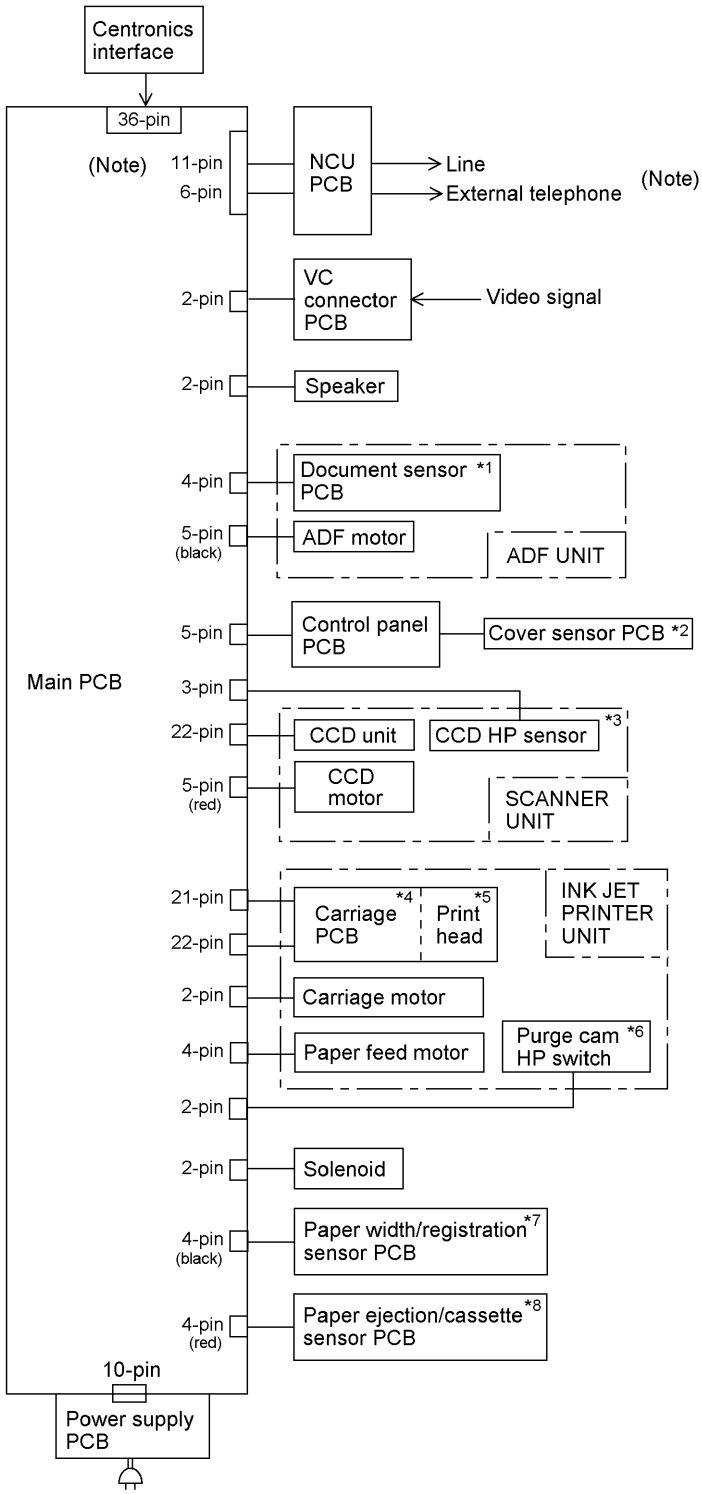

Ink cartridge sensors
Carriage encoder
Carriage PCB
(On this PCB is the head thermistor in addition to the carriage encoder, ink cartridge sensors, and black ink empty sensor.)
Black ink empty sensor
Carriage
Head PCB (On this PCB is the head property EEPROM.)
Print head unit placed with its back facing up

Location of Sensors and Actuators

3. CONTROL ELECTRONICS

3.1 Configuration

The hardware configuration of the facsimile equipment is shown below.



*1 On the document sensor PCB are these sensors:
- Document front sensor
- Document rear sensor

*2 On the cover sensor PCB is a cover sensor.

*3 The CCD HP sensor is located on the scanner base.

*4 On the carriage PCB are these sensors:
- Head thermistor
- Ink cartridge sensors
- Black ink empty sensor
- Carriage encoder

*5 On the head PCB of the print head unit is a head property EEPROM.

*6 The purge cam HP switch is located on the purge unit.

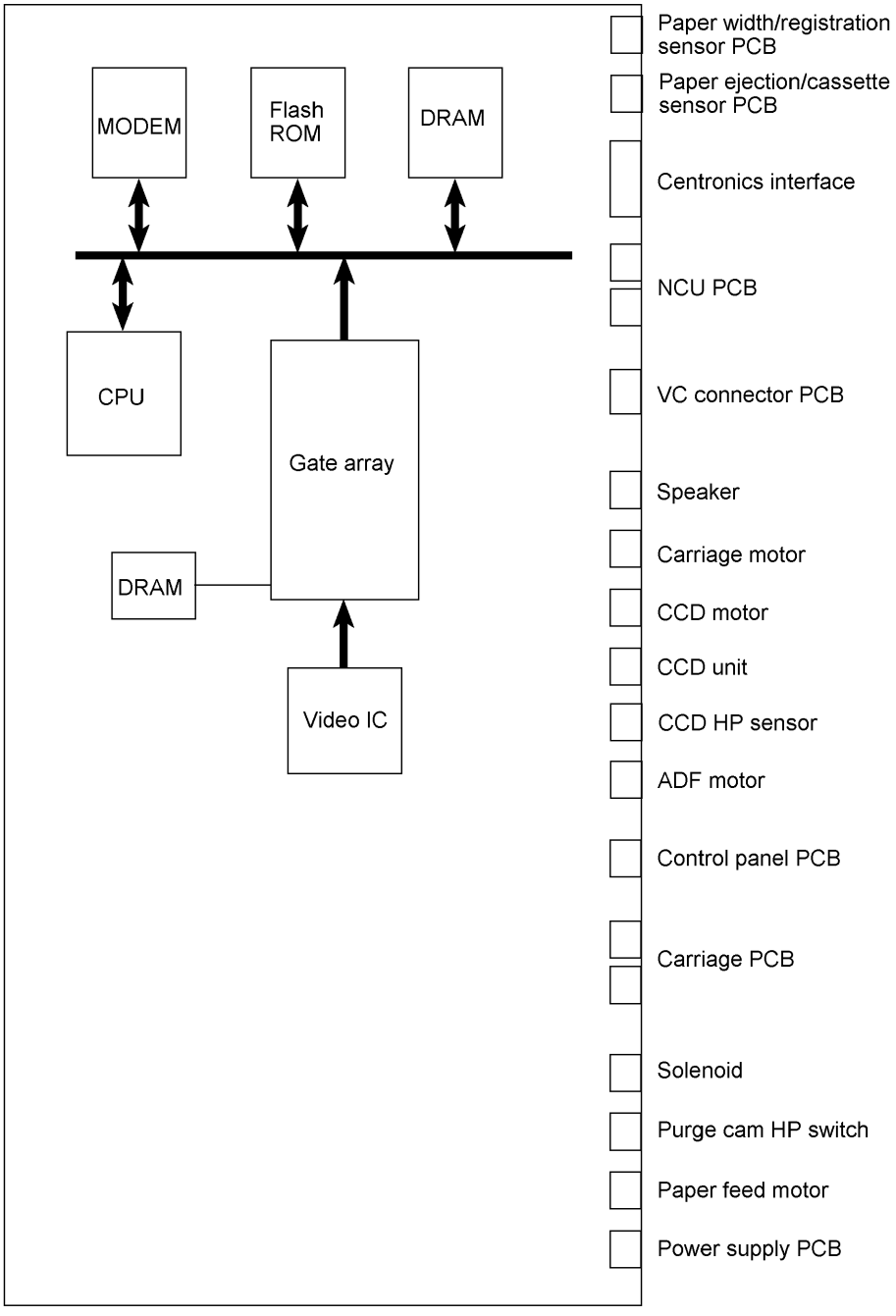
*7 On the paper width/registration sensor PCB are these sensors:
- Paper width sensor
- Registration sensor

*8 On the paper ejection/cassette sensor PCB are these sensors:
- Paper ejection sensor
- Cassette sensor

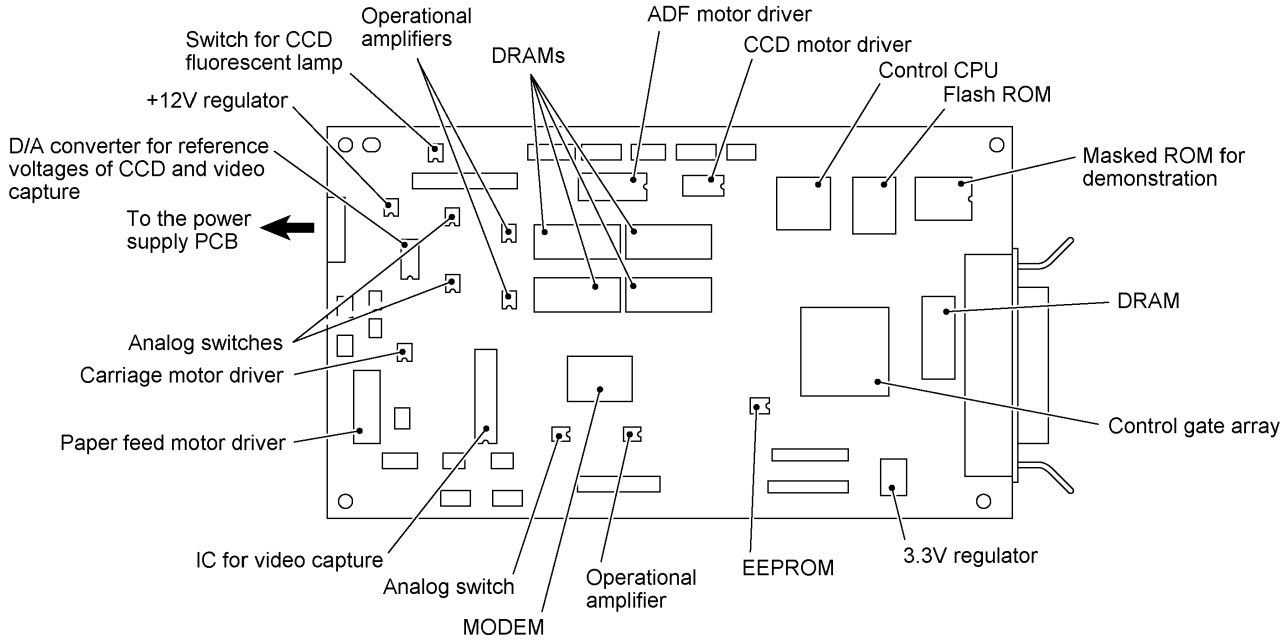
Configuration of Facsimile Equipment

3.2 Main PCB

The main PCB, which is the nucleus controlling the entire operation of the equipment, consists of a CPU, gate array, memories, MODEM, motor drive circuitry, sensor detection circuitry, and analog circuits for scanning and printing.



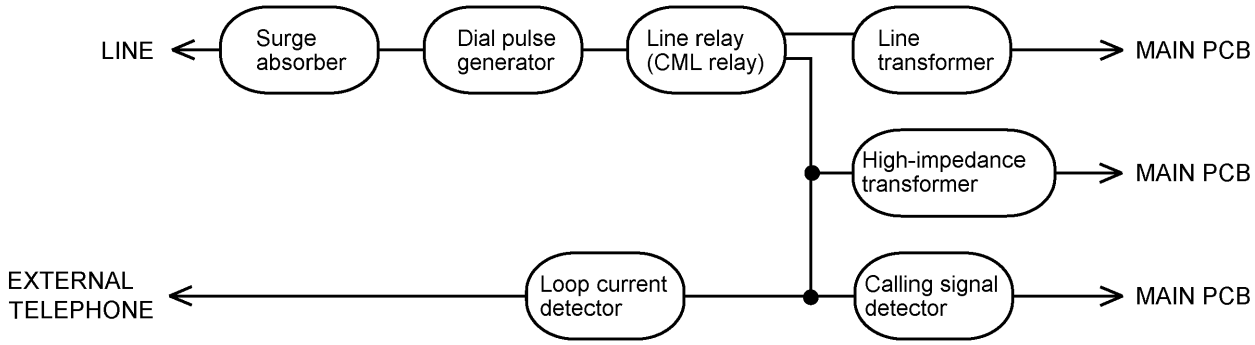
Block Diagram of Main PCB

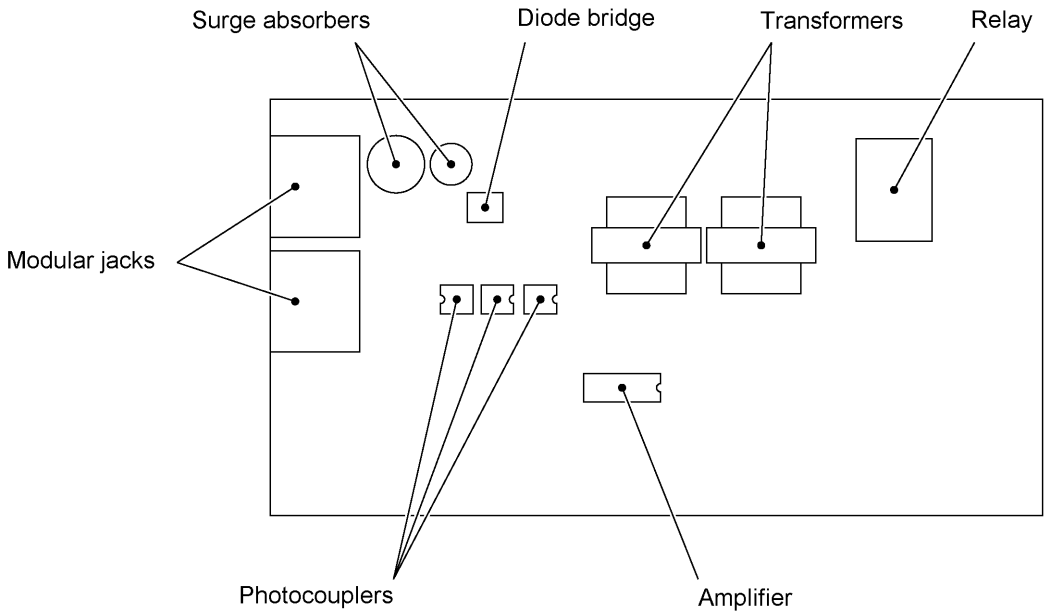

Operational amplifiers
ADF motor driver
Switch for CCD fluorescent lamp
DRAMs
CCD motor driver
Control CPU
Flash ROM
+12V regulator
D/A converter for reference voltages of CCD and video capture
Masked ROM for demonstration
To the power supply PCB
DRAM
Analog switches
Carriage motor driver
Control gate array
Paper feed motor driver
IC for video capture
Analog switch
MODEM
Operational amplifier
EEPROM
3.3V regulator

3.3 NCU PCB

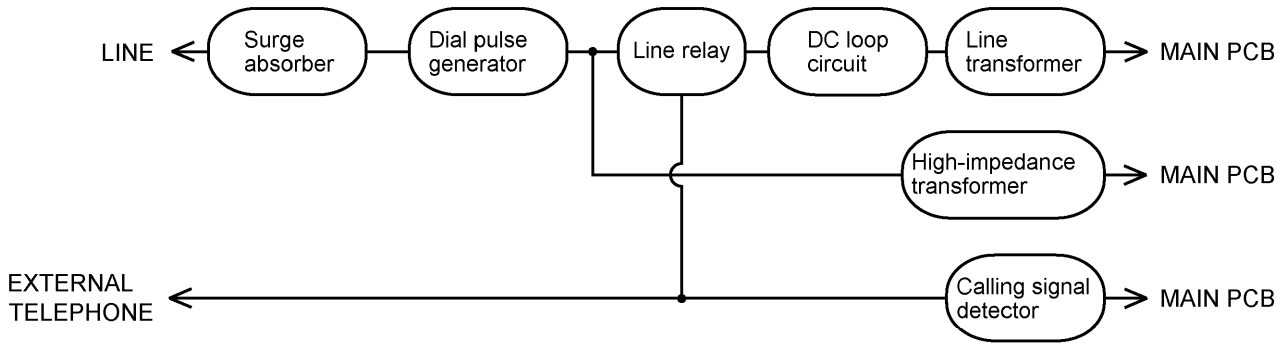
The NCU PCB switches the communications line to telephone or built-in MODEM, under the control of the main PCB.

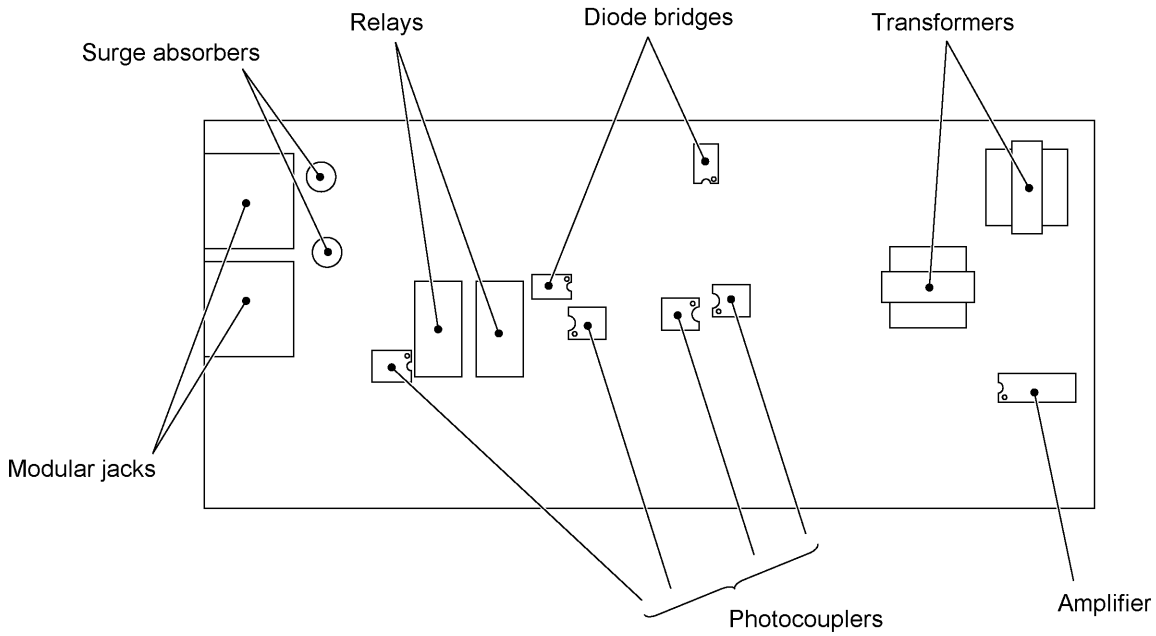
MFC9100C American version



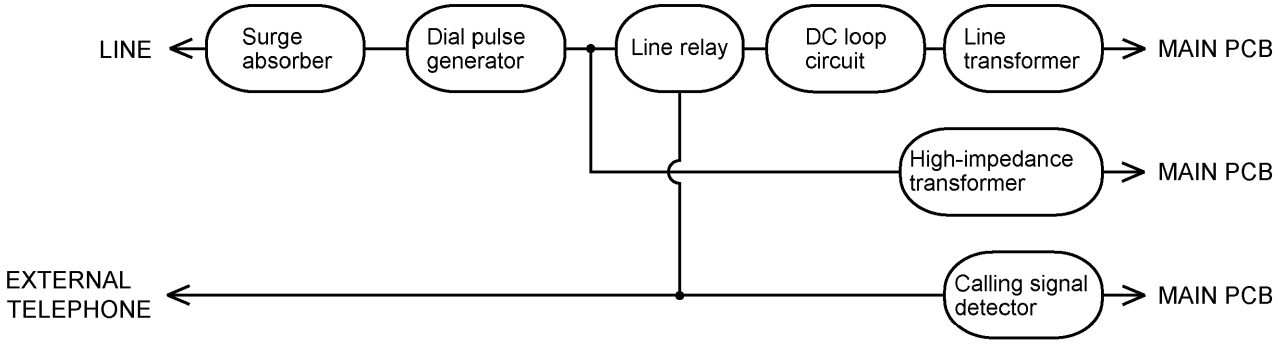


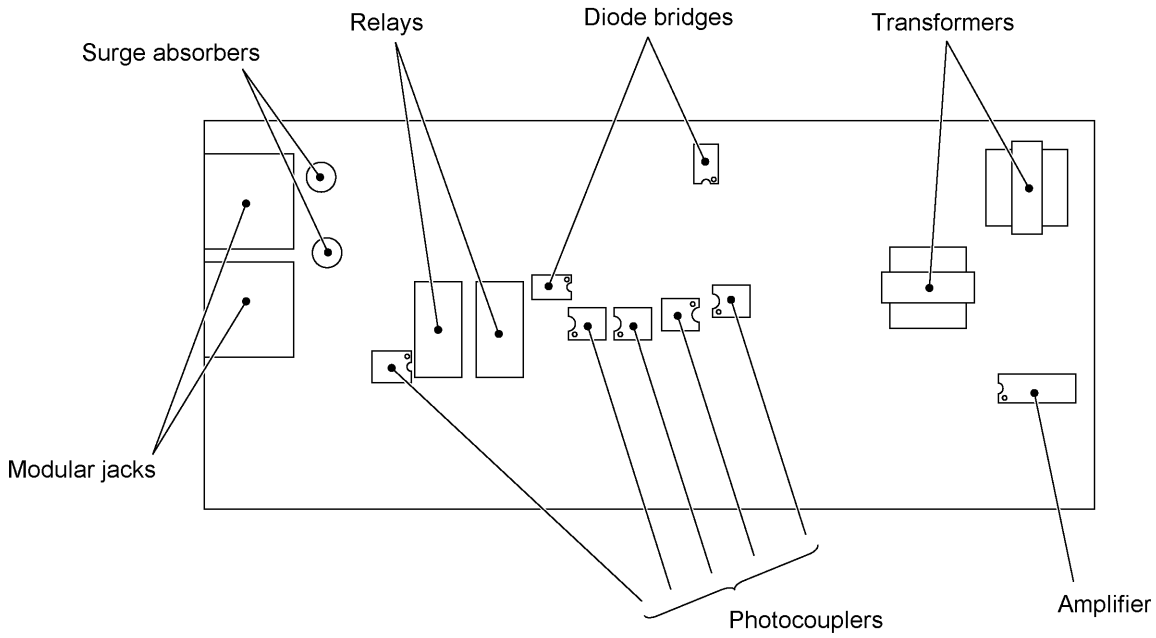
MFC9100C Asian/Oceanian versions





MFC760


LINE
Surge absorber
Dial pulse generator
Line relay
DC loop circuit
Line transformer
MAIN PCB
High-impedance transformer
MAIN PCB
EXTERNAL TELEPHONE
Calling signal detector
MAIN PCB


Surge absorbers
Relays
Diode bridges
Transformers
Modular jacks
Photocouplers
Amplifier

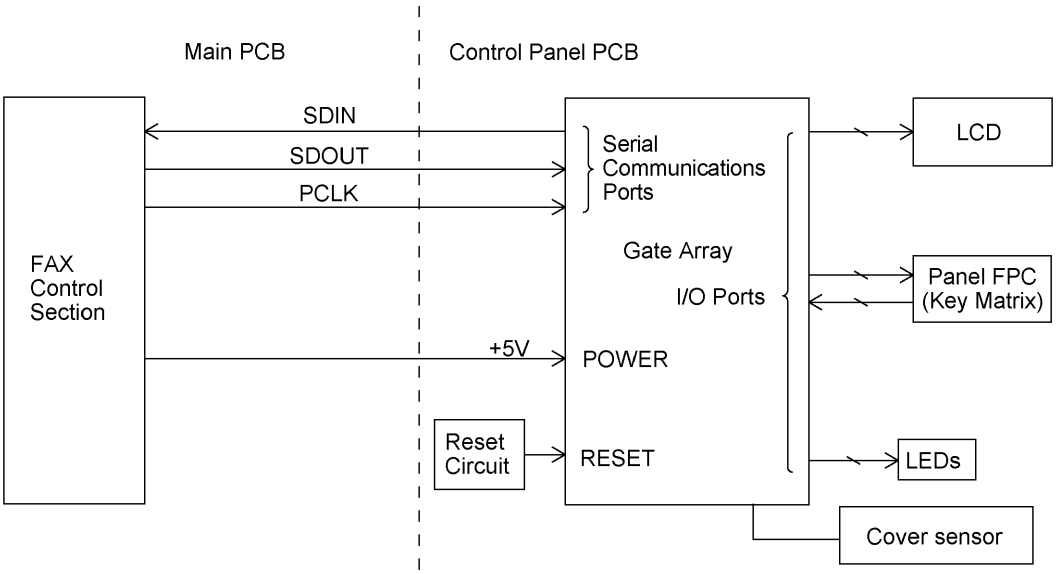
3.4 Control Panel PCB

The control panel PCB and the main PCB communicate with each other by serially transmitting commands and data.

The control panel unit consists of a gate array, an LCD and LEDs, which are controlled by the gate array according to commands issued from the control CPU on the main PCB.

The calendar clock is backed up by the backup circuit on the main PCB.

The panel FPC is a flexible keyboard PCB which integrates the key matrix having rubber keytops.



Control Panel PCB and its Related Circuit

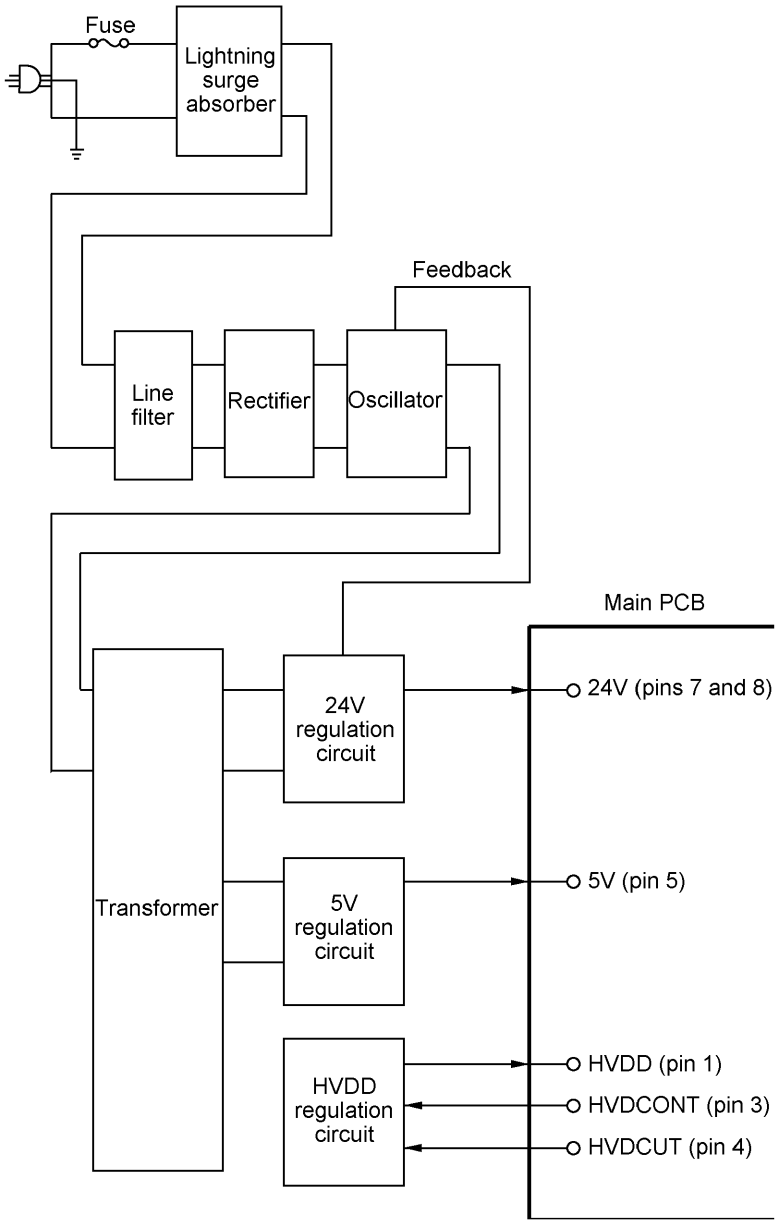
3.5 Power Supply PCB

The power supply uses the switching regulator to generate DC power (+24V, +5V, and HVDD) from a commercial AC power line.

The +24V source is stabilized and fed to the motors and solenoid for feeding documents and recording paper, as well as to the LED array of the CIS unit.

The +5V source is stabilized and fed to the logic, etc.

The HVDD is fed to the piezoelectric ceramic actuators embedded in the print head. It varies within 13.7V to 29.4V depending upon the temperature detected by the head thermister.



Power Supply Circuit

CHAPTER IV.

DISASSEMBLY/REASSEMBLY, LUBRICATION AND ADJUSTMENT

CHAPTER IV. DISASSEMBLY/REASSEMBLY, LUBRICATION AND ADJUSTMENT

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1. DISASSEMBLY/REASSEMBLY

n Safety Precautions

To prevent the creation of secondary problems by mishandling, observe the following precautions during maintenance work.

(1) Unplug the power cord from the power outlet before replacing parts or units. When having access to the power supply, be sure to unplug the power cord from the power outlet.

(2) Be careful not to lose screws, washers, or other parts removed for parts replacement.

(3) When using soldering irons and other heat-generating tools, take care not to damage the resin parts such as wires, PCBs, and covers.

(4) Before handling the PCBs, touch a metal portion of the equipment to discharge static electricity; otherwise, the electronic parts may be damaged due to the electricity charged in your body.

(5) When transporting PCBs, be sure to wrap them in conductive sheets such as aluminum foil.

(6) Be sure to reinsert self-tapping screws correctly, if removed.

(7) Tighten screws to the torque values listed on the following pages.

(8) When connecting or disconnecting cable connectors, hold the connector bodies not the cables. If the connector has a lock, always slide the connector lock to unlock it.

(9) Before reassembly, apply the specified lubricant to the specified points. (Refer to Section 2 in this chapter.)

(10) After repairs, check not only the repaired portion but also that the connectors and other related portions function properly before operation checks.

(11) Once the print head prints, it will start head locking operation after five seconds from the end of printing. The head locking operation will take 5 to 10 seconds. NEVER unplug the power cord before the equipment completes the head locking operation; doing so will make the print head unusable and require replacement with a new print head.

When you receive the equipment from the user or when you pack it for sending it back to the user, check the head locking state.

Tightening Torque List

Location	Screw type	Q'ty	Tightening torque N•m (kgf•cm)
Hinges on the document tray ASSY	Taptite, cup B M3x10	6	0.59 ±0.10 (6 ±1)
Document tray ASSY	Taptite, cup S M3x8	1	0.69 ±0.10 (7 ±1)
Rear cover	Taptite, cup S M3x10	3	0.69 ±0.10 (7 ±1)
Harness support	Taptite, cup B M3x8	2	0.59 ±0.10 (6 ±1)
Grounding wire	Taptite, cup S M3x6	1	0.69 ±0.10 (7 ±1)
ADF supports	Taptite, cup B M3x8	2	0.59 ±0.10 (6 ±1)
ADF side covers F and R	Taptite, cup S M3x8	2	0.69 ±0.10 (7 ±1)
ADF motor	Screw, pan (washer) M3x6DA	2	0.69 ±0.10 (7 ±1)
ADF parts	Taptite, pan B M3x6	1	0.39 ±0.10 (4 ±1)
Upper ADF chute	Taptite, cup B M3x8	2	0.59 ±0.10 (6 ±1)
ADF motor bracket	Taptite, cup S M3x6	3	0.69 ±0.10 (7 ±1)
Cover sensor PCB	Taptite, cup B M3x8	1	0.59 ±0.10 (6 ±1)
Control panel PCB	Taptite, cup B M2.6x8	2	0.39 ±0.10 (4 ±1)
Key support plate	Taptite, cup B M3x6	6	0.59 ±0.10 (6 ±1)
Torsion bar support	Taptite, cup S M3x6	2	0.69 ±0.10 (7 ±1)
Hinges on the scanner unit	Taptite, bind B M4x12	4	0.98 ±0.10 (10 ±1)
Scanner top cover	Taptite, cup B M4x12	4	0.98 ±0.10 (10 ±1)
CCD rail clamp	Taptite, cup B M3x8	1	0.59 ±0.10 (6 ±1)
CCD idle pulley holder	Taptite, pan B M3x10	2	0.59 ±0.10 (6 ±1)
CCD motor bracket	Taptite, cup B M3x8	3	0.59 ±0.10 (6 ±1)
CCD motor	Screw, pan (washer) M3x6DA	2	0.69 ±0.10 (7 ±1)
Flat cable clamp	Taptite, cup B M3x8	4	0.59 ±0.10 (6 ±1)
Guide plate	Taptite, cup B M3x8	4	0.59 ±0.10 (6 ±1)
Cover sheet	Taptite, cup S M3x6	1	0.69 ±0.10 (7 ±1)
Rear frame	Taptite, cup S M3x6	4	0.69 ±0.10 (7 ±1)
Hinges on the rear frame	Taptite, cup S M3x6	4	0.69 ±0.10 (7 ±1)
Inner cover	Taptite, cup S M3x10	1	0.69 ±0.10 (7 ±1)
Front cover	Taptite, cup S M3x6	2	0.69 ±0.10 (7 ±1)
Side cover L	Taptite, cup S M3x6	2	0.69 ±0.10 (7 ±1)
VC connector PCB	Taptite, cup B M3x8	1	0.59 ±0.10 (6 ±1)
VC grounding bracket	Taptite, cup S M3x6	1	0.69 ±0.10 (7 ±1)
Side cover R	Taptite, cup S M3x6	1	0.69 ±0.10 (7 ±1)
Speaker	Taptite, cup B M4x10	2	0.78 ±0.10 (8 ±1)
NCU bracket	Taptite, cup S M3x6	2	0.69 ±0.10 (7 ±1)
NCU PCB	Taptite, cup S M3x6	1	0.59 ±0.10 (6 ±1)
Power supply PCB	Taptite, cup S M3x6	4	0.59 ±0.10 (6 ±1)
AC cord grounding wire	Screw, pan (washer) M4x8DB	1	0.59 ±0.10 (6 ±1)
Interface connector	Machine screw, pan M3x6	2	0.59 ±0.10 (6 ±1)

Location	Screw type	Q'ty	Tightening torque N•m (kgf•cm)	
Main PCB	Taptite, cup S M3x6	4	0.59 ±0.10	(6 ±1)
PCB support plate	Taptite, cup S M3x6	2	0.69 ±0.10	(7 ±1)
Purge unit	Screw, pan (washer) M3x6DB	2	0.69 ±0.10	(7 ±1)
Platen frame	Taptite, cup S M3x6	1	0.69 ±0.10	(7 ±1)
Cable clip	Taptite, cup S M3x6	1	0.59 ±0.10	(6 ±1)
Main chassis	Taptite, cup S M3x6	8	0.69 ±0.10	(7 ±1)
Lower paper chute	Taptite, cup B M4x10	2	0.98 ±0.10	(10 ±1)
Tension plate ASSY	Screw, pan (washer) M3x8DB	1	0.69 ±0.10	(7 ±1)
Paper feed motor	Screw, pan (washer) M3x8DB	2	0.69 ±0.10	(7 ±1)
Paper ejection roller	Screw, pan (washer) M2.6x8DB	1	0.29 ±0.10	(3 ±1)
Idle pulley stopper	Screw, pan (washer) M3x8DB	1	0.69 ±0.10	(7 ±1)
Eccentric bushings L and R	Screw, pan (washer) M3x8DB	2	0.69 ±0.10	(7 ±1)
Carriage motor	Screw, pan (washer) M3x6DB	2	0.69 ±0.10	(7 ±1)
Drain tank	Taptite, cup S M3x6	1	0.69 ±0.10	(7 ±1)
Bottom plate	Taptite, cup S M3x6	4	0.69 ±0.10	(7 ±1)
PF side frame L	Taptite, cup S M3x6	2	0.69 ±0.10	(7 ±1)
PF side frame R	Taptite, cup S M3x6	2	0.69 ±0.10	(7 ±1)
	Taptite, cup B M3x10	2	0.59 ±0.10	(6 ±1)
Paper width/registration sensor PCB	Taptite, cup B M2.6x8	1	0.39 ±0.10	(4 ±1)

n Preparation

Prior to proceeding to the disassembly procedure,

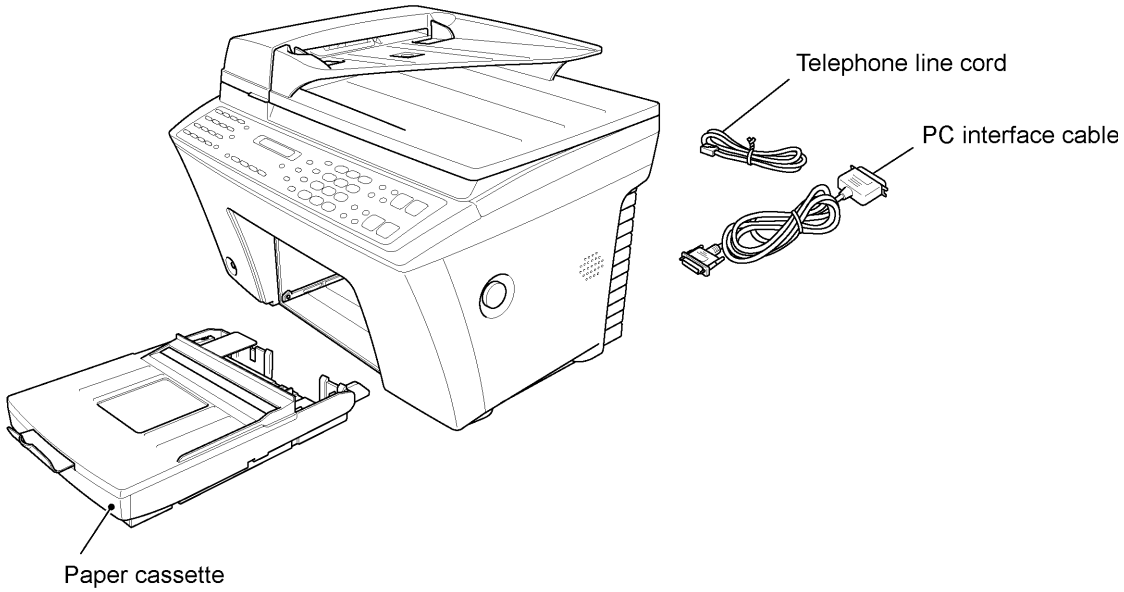
(1) Unplug

- the modular jack of the telephone line,
- the PC interface cable, and
- the modular jack of an external telephone set if connected. (Not shown below.)

(2) Remove

- the paper cassette (by lifting up its front end slightly and pulling it out).

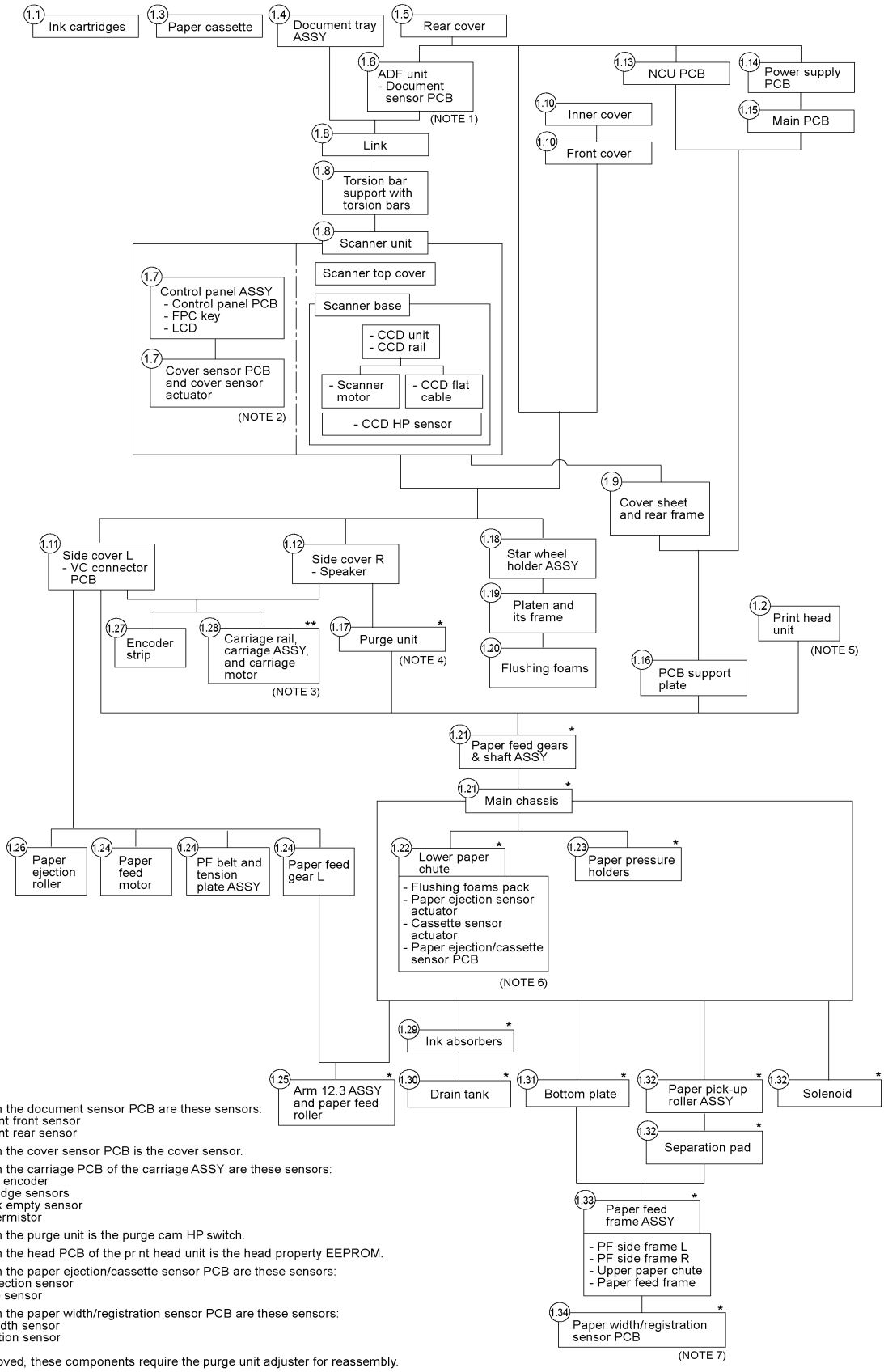
NOTE: Do not remove the ink cartridges when disassembling the equipment except when removing the print head.



n How to Access the Object Component

- On the next page is a disassembly order flow which helps you access the object components. To remove the paper feed motor, for example, first find it on the flow and learn its number (1.24 in this case). You need to remove parts numbered 1.4, 1.5, 1.6, 1.8, 1.10, and 1.11 so as to access the paper feed motor.
- Unless otherwise specified, the disassembled parts or components should be reassembled in the reverse order of removal.

n Disassembly Order Flow


1.1 Ink cartridges
1.3 Paper cassette
1.4 Document tray ASSY
1.5 Rear cover
1.6 ADF unit - Document sensor PCB
(NOTE 1)
1.13 NCU PCB
1.14 Power supply PCB
1.10 Inner cover
1.15 Main PCB
1.10 Front cover
1.8 Link
1.8 Torsion bar support with torsion bars
1.8 Scanner unit
1.7 Control panel ASSY - Control panel PCB - FPC key - LCD
1.7 Cover sensor PCB and cover sensor actuator
(NOTE 2)
Scanner top cover
Scanner base
- CCD unit - CCD rail
- Scanner motor
- CCD flat cable
- CCD HP sensor
1.9 Cover sheet and rear frame
1.11 Side cover L - VC connector PCB
1.12 Side cover R - Speaker
1.18 Star wheel holder ASSY
1.19 Platen and its frame
1.20 Flushing foams
1.2 Print head unit
(NOTE 5)
1.27 Encoder strip
1.28 Carriage rail, carriage ASSY, and carriage motor **
(NOTE 3)
1.17 Purge unit *
(NOTE 4)
1.16 PCB support plate
1.21 Paper feed gears & shaft ASSY *
1.21 Main chassis *
1.26 Paper ejection roller
1.24 Paper feed motor
1.24 PF belt and tension plate ASSY
1.24 Paper feed gear L
1.22 Lower paper chute *
- Flushing foams pack
- Paper ejection sensor actuator
- Cassette sensor actuator
- Paper ejection/cassette sensor PCB
(NOTE 6)
1.23 Paper pressure holders *
1.29 Ink absorbers *
1.25 Arm 12.3 ASSY and paper feed roller *
1.30 Drain tank *
1.31 Bottom plate *
1.32 Paper pick-up roller ASSY *
1.32 Solenoid *
1.32 Separation pad *
1.33 Paper feed frame ASSY *
- PF side frame L
- PF side frame R
- Upper paper chute
- Paper feed frame
1.34 Paper width/registration sensor PCB *
(NOTE 7)

(NOTE 1) On the document sensor PCB are these sensors:
- Document front sensor
- Document rear sensor

(NOTE 2) On the cover sensor PCB is the cover sensor.

(NOTE 3) On the carriage PCB of the carriage ASSY are these sensors:
- Carriage encoder
- Ink cartridge sensors
- Black ink empty sensor
- Head thermistor

(NOTE 4) On the purge unit is the purge cam HP switch.

(NOTE 5) On the head PCB of the print head unit is the head property EEPROM.

(NOTE 6) On the paper ejection/cassette sensor PCB are these sensors:
- Paper ejection sensor
- Cassette sensor

(NOTE 7) On the paper width/registration sensor PCB are these sensors:
- Paper width sensor
- Registration sensor

* Once removed, these components require the purge unit adjuster for reassembly.

** Once these components are removed, it is recommended that the gap adjustment iig be used for accurate head-platen gap.

1.1 Ink Cartridges

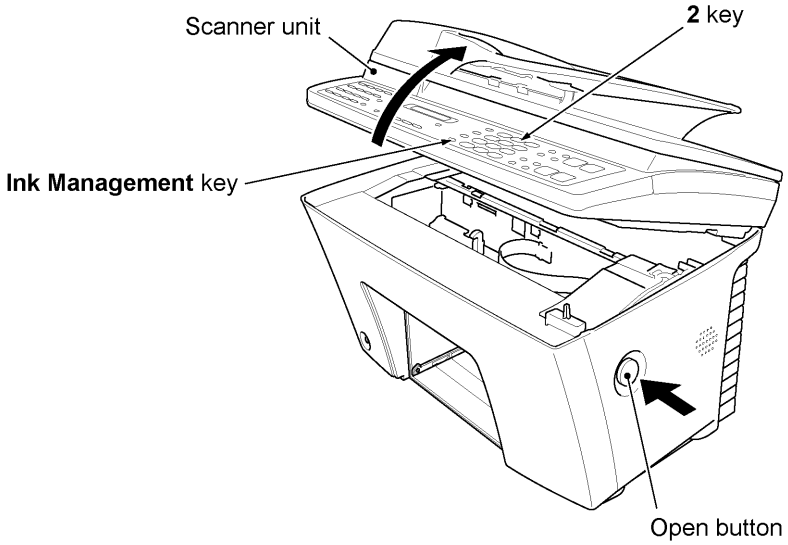
During disassembly jobs (except when removing the print head), all of the four ink cartridges should be kept in place. The following ink cartridge replacement procedure should apply only when you replace ink cartridges. When replacing the print head, do not apply this procedure but the procedure given in Section 1.2.

(1) Plug the power cord into a wall socket.

(2) If any ink empty message (INK EMPTY BLACK, CYAN, MAGENT, or YELLOW) and "PLS OPEN COVER" are displayed alternately on the LCD, press the open button to open the scanner unit in order to place the equipment in the ink cartridge replacement mode.

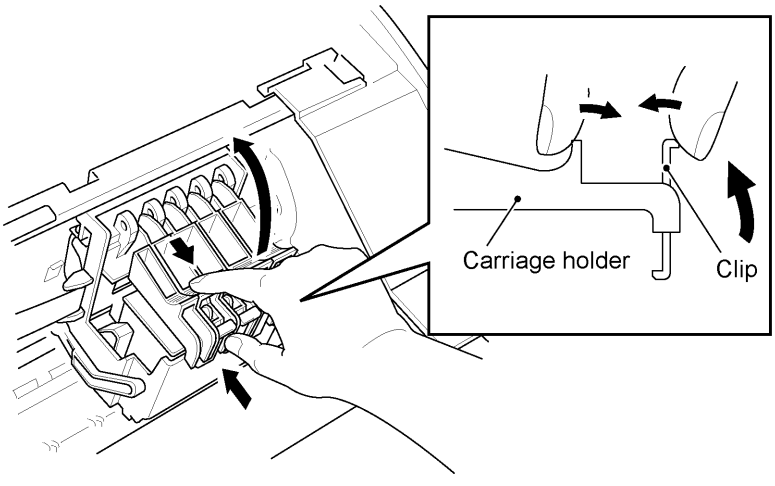
If any ink near-empty message (NEAR EMPTY BLACK, CYAN, MAGENT, or YELLOW) or no message is displayed on the LCD, follow the steps below in order to place the equipment in the ink cartridge replacement mode.

1) Press the **Ink Management** key.
2) Press the **2** key.
3) Press the open button to open the scanner unit.



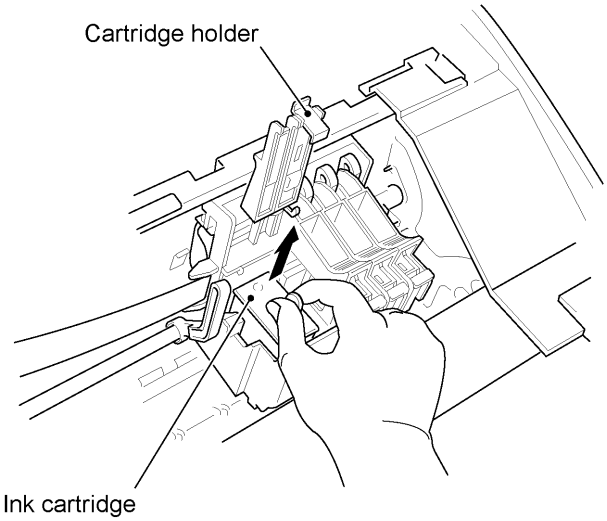
The carriage automatically moves left to the ink cartridge replacement position.

(3) Pull up the cartridge holder of the ink cartridge to be replaced by pinching its clip with your fingers.



(4) Take out the ink cartridge from the print head.

NOTE: When handling ink cartridges, do not touch their orifices which may stain your hands or clothing with ink.



(5) Load a new or removed ink cartridge. Be sure to snap it into place.

NOTE: When using a new cartridge, first open the cartridge bag, take out the cartridge, and remove the sealing tape gently.

(6) Close the cartridge holder until it clicks into place.

(7) Close the scanner unit.

For each of the ink cartridges loaded, the confirmation message will appear as shown below, asking you whether the ink dot counter should be reset to zero.

```
DID YOU CHANGE
CYAN? 1.YES 2.NO
```

In this area appears CYAN, BLCK, YELW, or MGTA.

If you have loaded a new ink cartridge in step (5), press the **1** key to reset the ink dot counter; if you have reloaded the removed one, press the **2** key.

NOTE: Pressing the **1** key although you have reloaded the removed one could cause inkless printing.

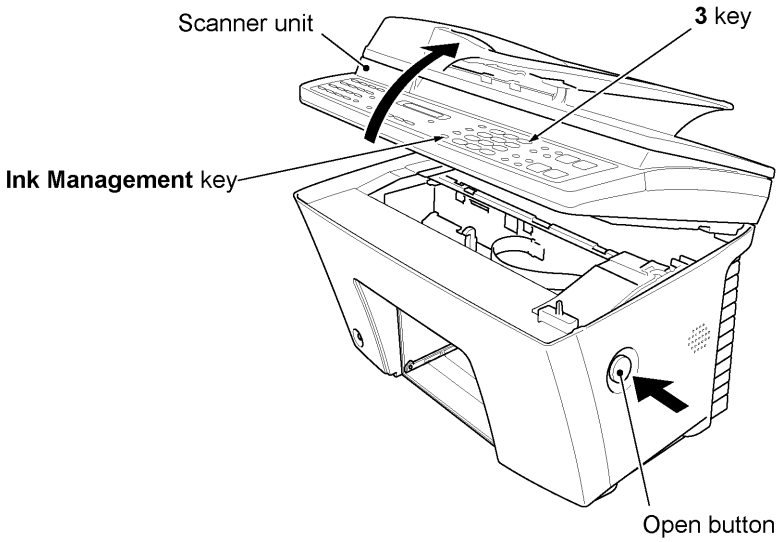
(8) The equipment automatically enters the purge mode. Select the related ink-jet unit(s) of the print head for purging air bubbles .

1.2 Print Head Unit

During disassembly jobs (except when removing the purge unit, carriage rail or carriage ASSY), the print head and all the four ink cartridges should be kept in place.

(1) Plug the power cord into a wall socket.

(2) Open the scanner unit and then press the **Ink Management** key.

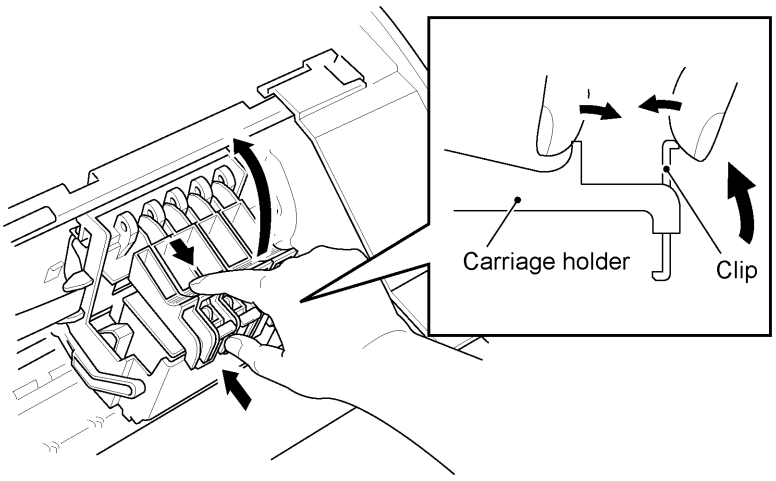


(3) Press the **3** key.

```
REMOVE ALL INKS
AND PRINT HEAD
```

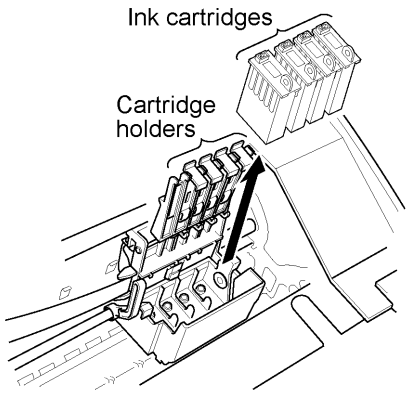
The carriage automatically moves to the head replacement position (to the left from the home position).

(4) Pull up all cartridge holders by pinching their clips with your fingers.



(5) Remove all ink cartridges, one at a time.

NOTE: When handling ink cartridges, do not touch their nozzles which may stain your hands or clothing with ink.



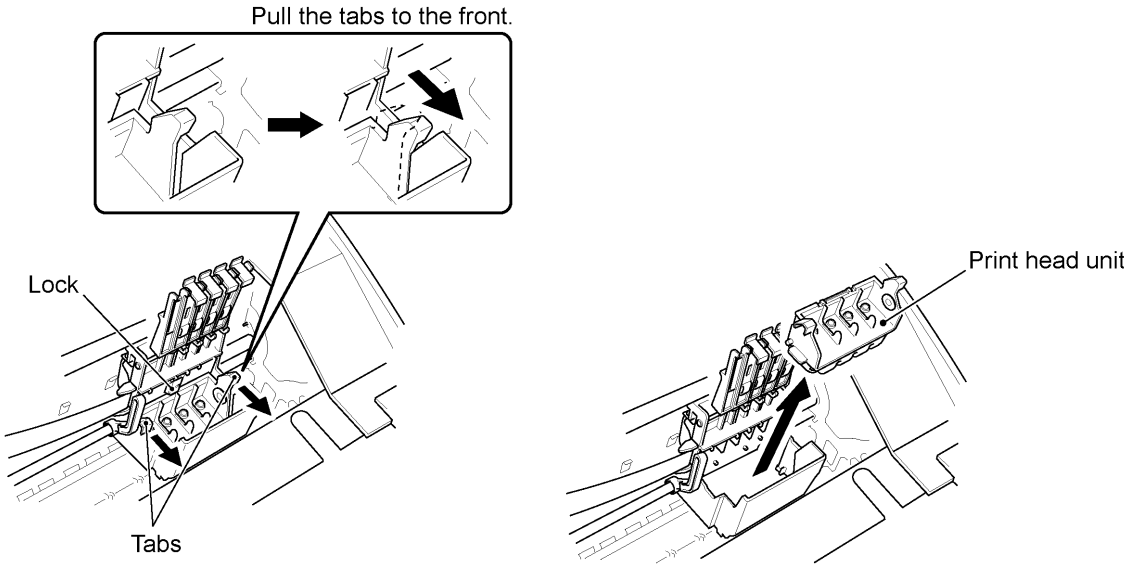
(6) Pull the tabs of the print head unit to the front in order to release the rear edge of the print head unit from the lock provided on the carriage. Then lift the print head unit up and out of the carriage.

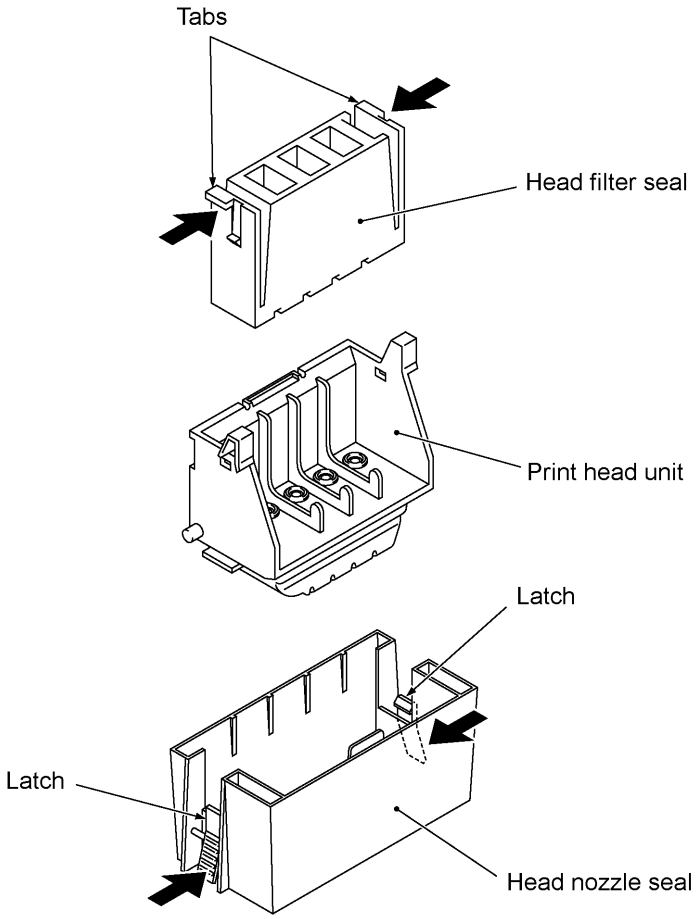
```
INSTALL HEAD
AND CARTRIDGES
```

NOTE: Do not touch the printing ends (nozzles) of the print head; doing so will stain your hands with ink.

NOTE: Be sure to put a head nozzle seal and filter seal on the print head as shown on the next page. Leaving the print head without those seals will dry up its printing ends and filters, resulting in a damaged head.

NOTE: Do not touch the control board provided on the rear side of the print head.





(7) If the head cap has collected ink, clean it with a head cleaner. If the surrounding parts are stained with ink, wipe them off with a clean cloth.

(8) To install a new (or removed) print head unit, take off the yellow head nozzle seal and then put the print head unit onto the carriage, taking care not to touch the control board provided on the rear side of the print head.

(9) Push the tabs of the print head unit to the rear until it locks into place.

(10) Remove the yellow head filter seal from the print head unit, then load ink cartridges in the order of black, yellow, cyan, and magenta. Be sure to snap them into place.

(11) Close the cartridge holders until they click into place.

(12) Close the scanner unit.

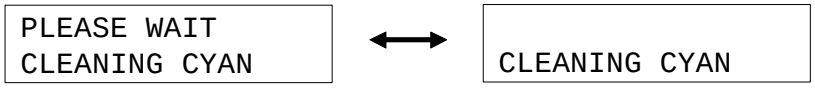
For each of the ink cartridges loaded, the confirmation message will appear as shown below, asking you whether you loaded a new cartridge.

```
DID YOU CHANGE
CYAN? 1.YES 2.NO
```

(13) If you have loaded a new cartridge, press the **1** key within one minute. The ink dot counter will be reset to zero.

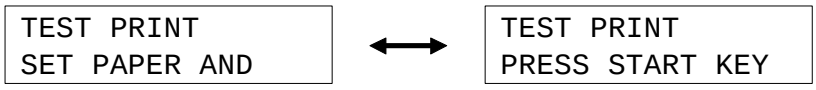
If you have reloaded the removed one, press the **2** key within one minute.

(14) The equipment automatically carries out purging operation for each ink-jet unit of the print head.



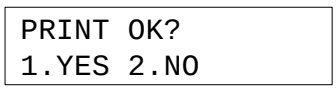
(Steps (15) through (18) given below will be skipped if you have reinstalled the removed print head unit.)

(15) Upon completion of purging operation, the following messages appear alternately:



Make sure that paper is loaded in the paper cassette and it is set in place, then press the **Start** key.

The equipment prints "Nozzle check pattern sheet" and then shows the following message:



(16) Check the print quality, following the instructions given on "Nozzle check pattern sheet."

If the print quality is OK, press the **1** key and proceed to step (17).

If any of the horizontal lines are missing or no-print areas are found between color blocks, press the **2** key within one minute, and go back to step (14).

Pressing neither key within one minute makes the equipment proceed to step (17).

(17) The following messages appear alternately:

Make sure that paper is loaded in the paper cassette, then press the **Start** key within one minute. The equipment prints "Vertical alignment check pattern sheet."

If the **Start** key is not pressed within one minute, the equipment automatically returns to the initial stage of the maintenance mode.

(18) According to the instructions given on "Vertical alignment check pattern sheet," adjust the alignment of vertical print lines.

1.3 Paper Cassette

You may remove the parts from the paper cassette as follows:

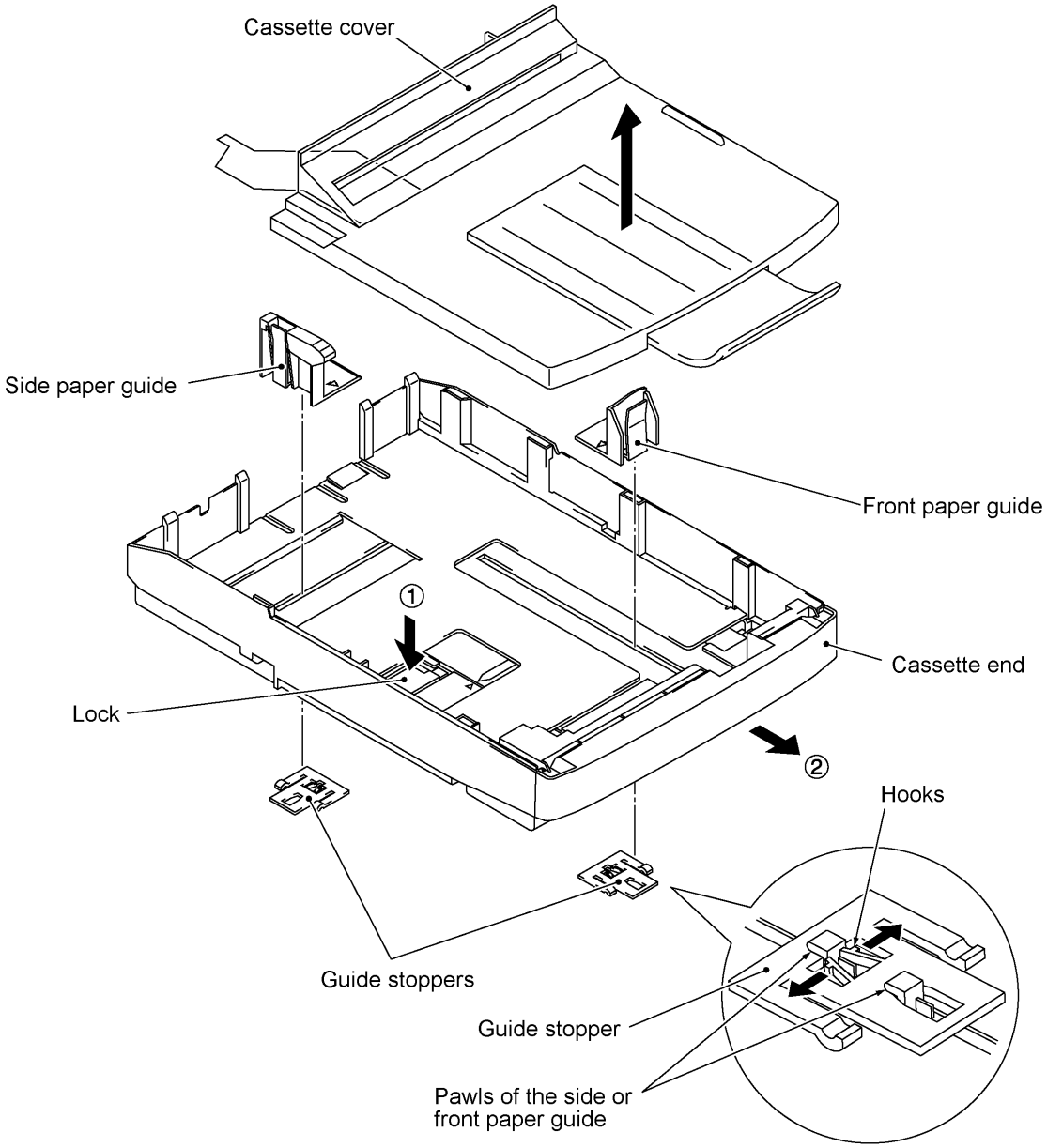
(1) Remove the cassette cover.

(2) To remove the front paper guide, lightly press the lock in the direction of arrow • and pull out the cassette end in the direction of arrow , until it stops.

Turn the paper cassette upside down.

Then pull the hooks of the guide stopper outwards and release the guide stopper from the pawls of the front paper guide.

(3) To remove the side paper guide, pull the hooks of the guide stopper outwards and release the guide stopper from the pawls of the side paper guide.

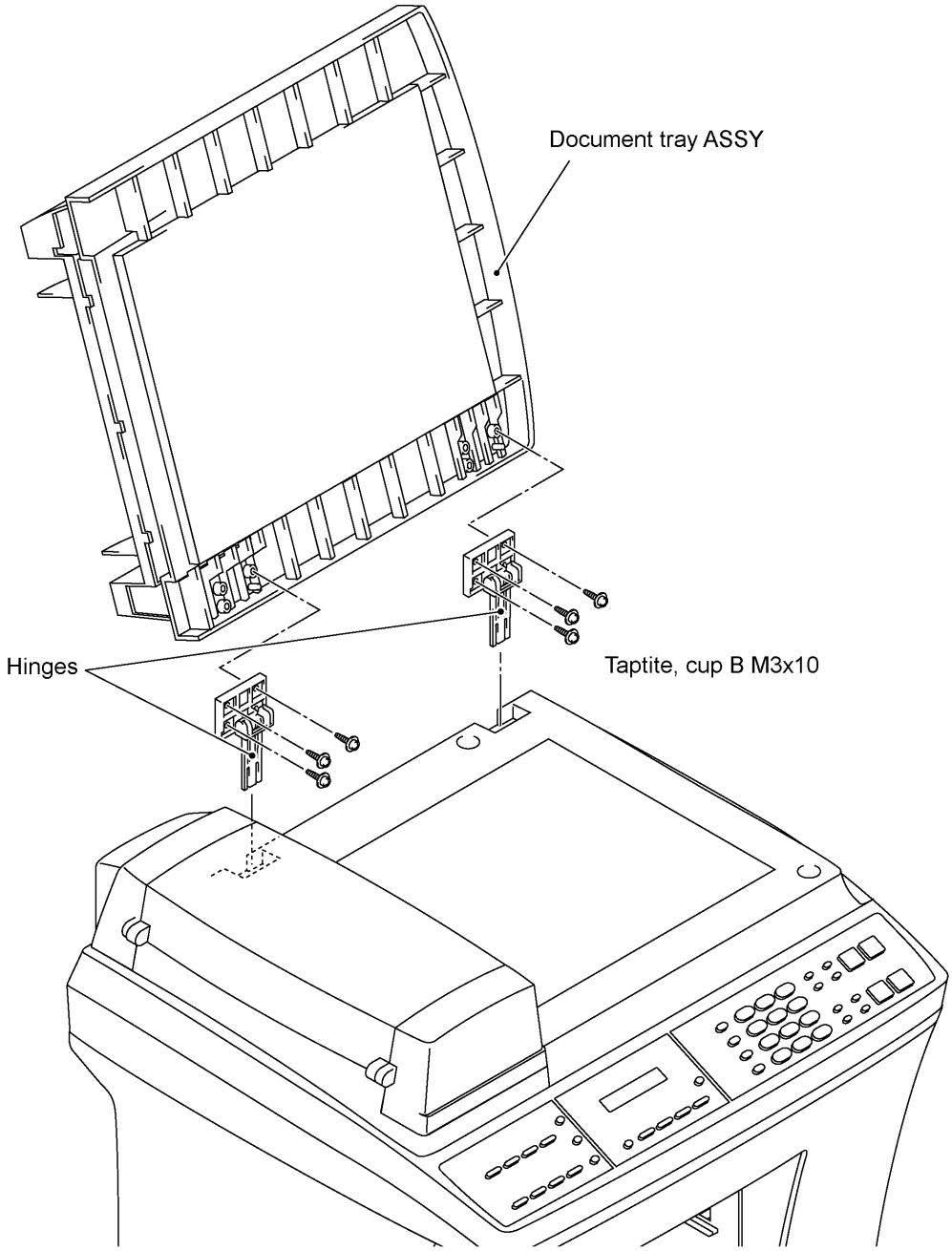


1.4 Document Tray ASSY

(1) Fully open the document tray ASSY.

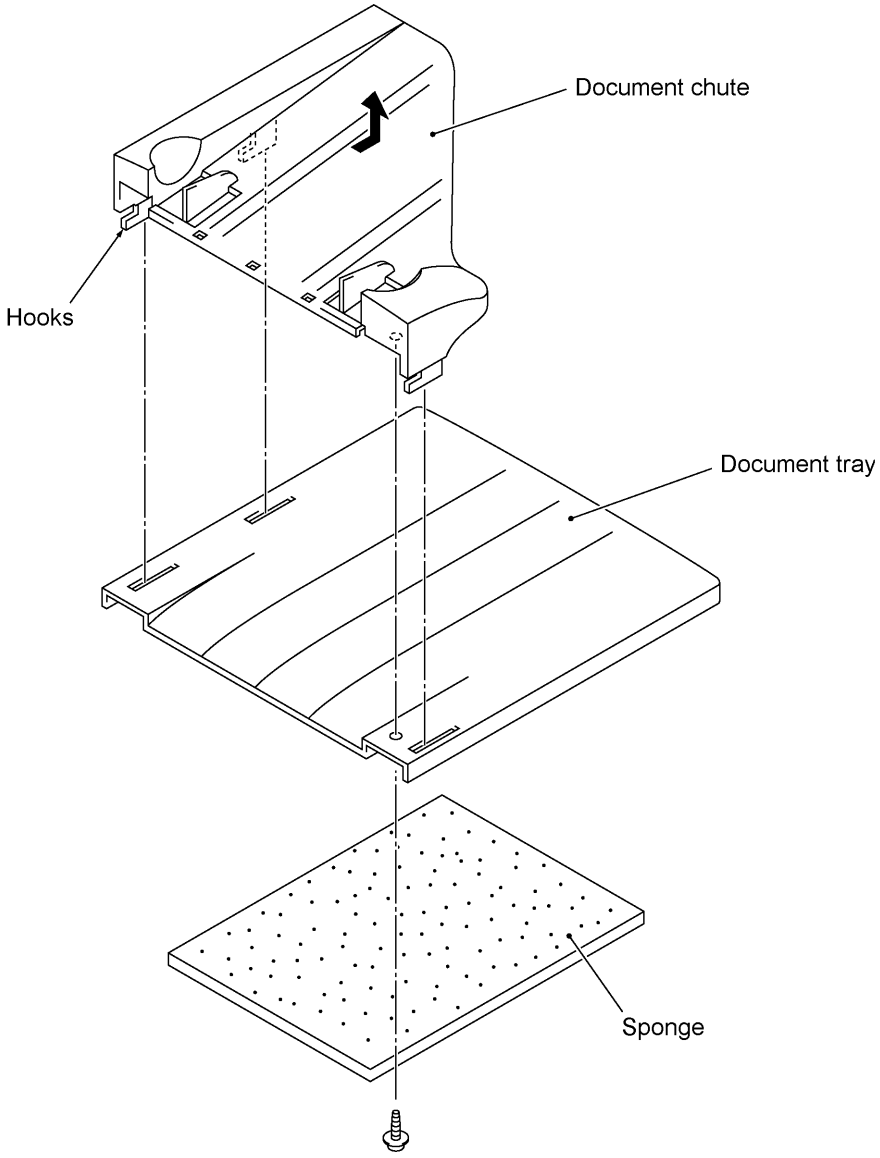
(2) Lift up the document tray ASSY straight and take the hinges out of the scanner unit.

(3) Remove the three screws from each of the hinges.



(4) Remove the screw, then lightly tap the left end of the document chute to release the three hooks from the document tray.

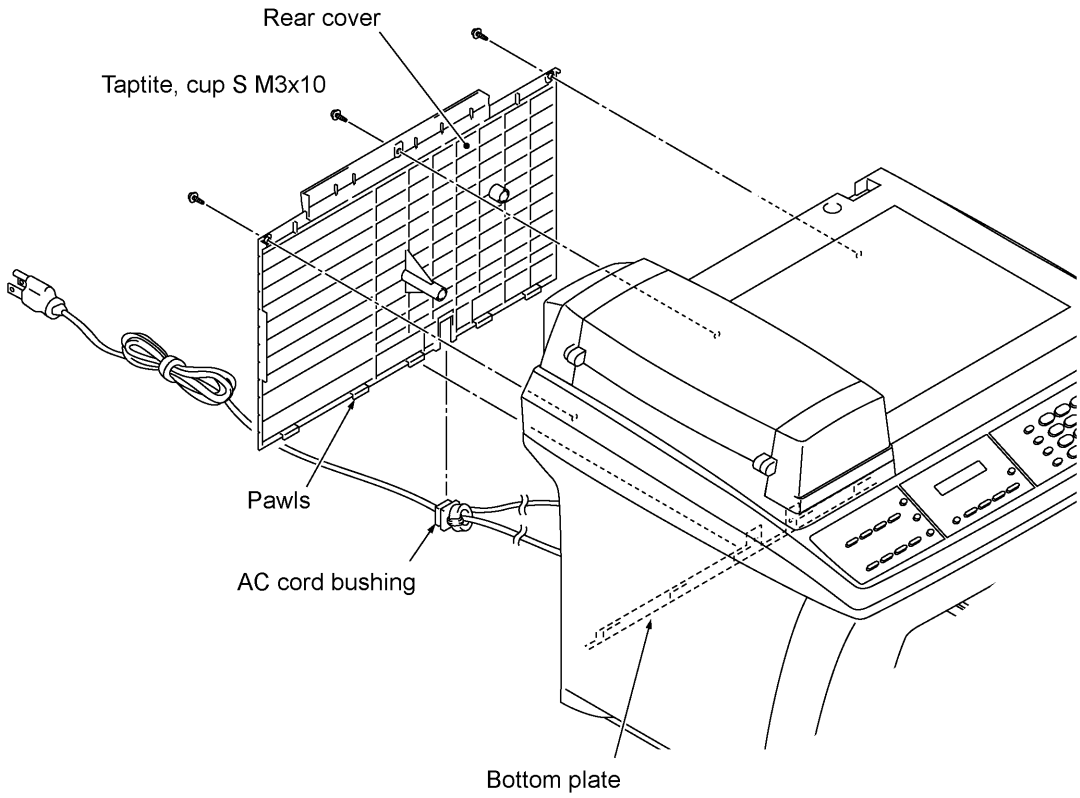
(5) Remove the sponge.



1.5 Rear Cover

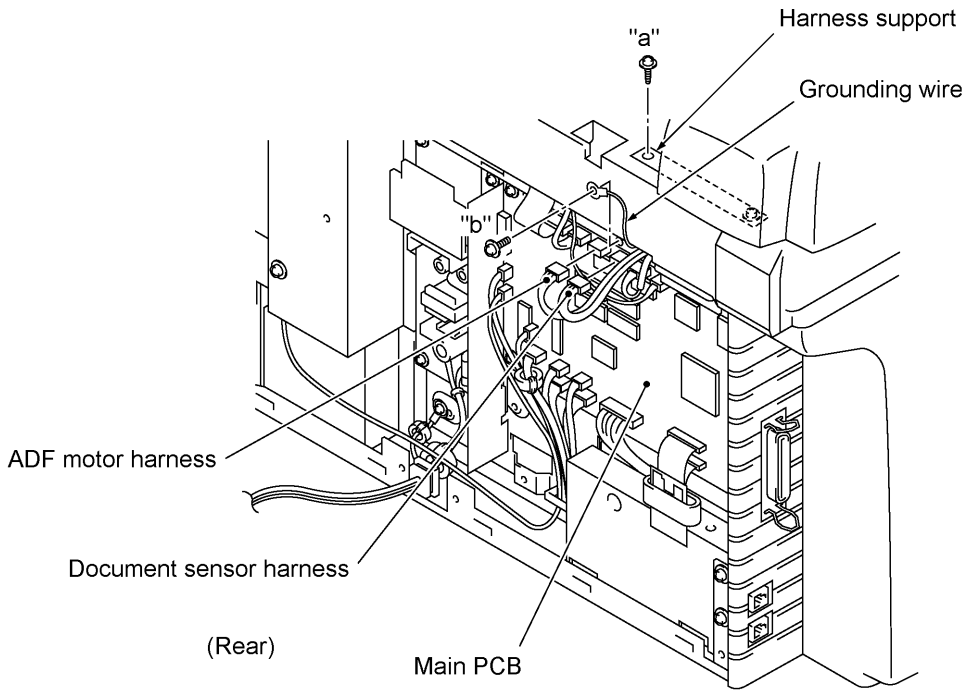
(1) Remove the three screws and unhook the five pawls from the bottom plate.

(2) Remove the AC cord bushing from the rear cover.



1.6 ADF Unit

(1) Remove screw "a" from the harness support.
(2) Remove screw "b" to release the grounding wire.
(3) Disconnect the ADF motor harness and document sensor harness from the main PCB.



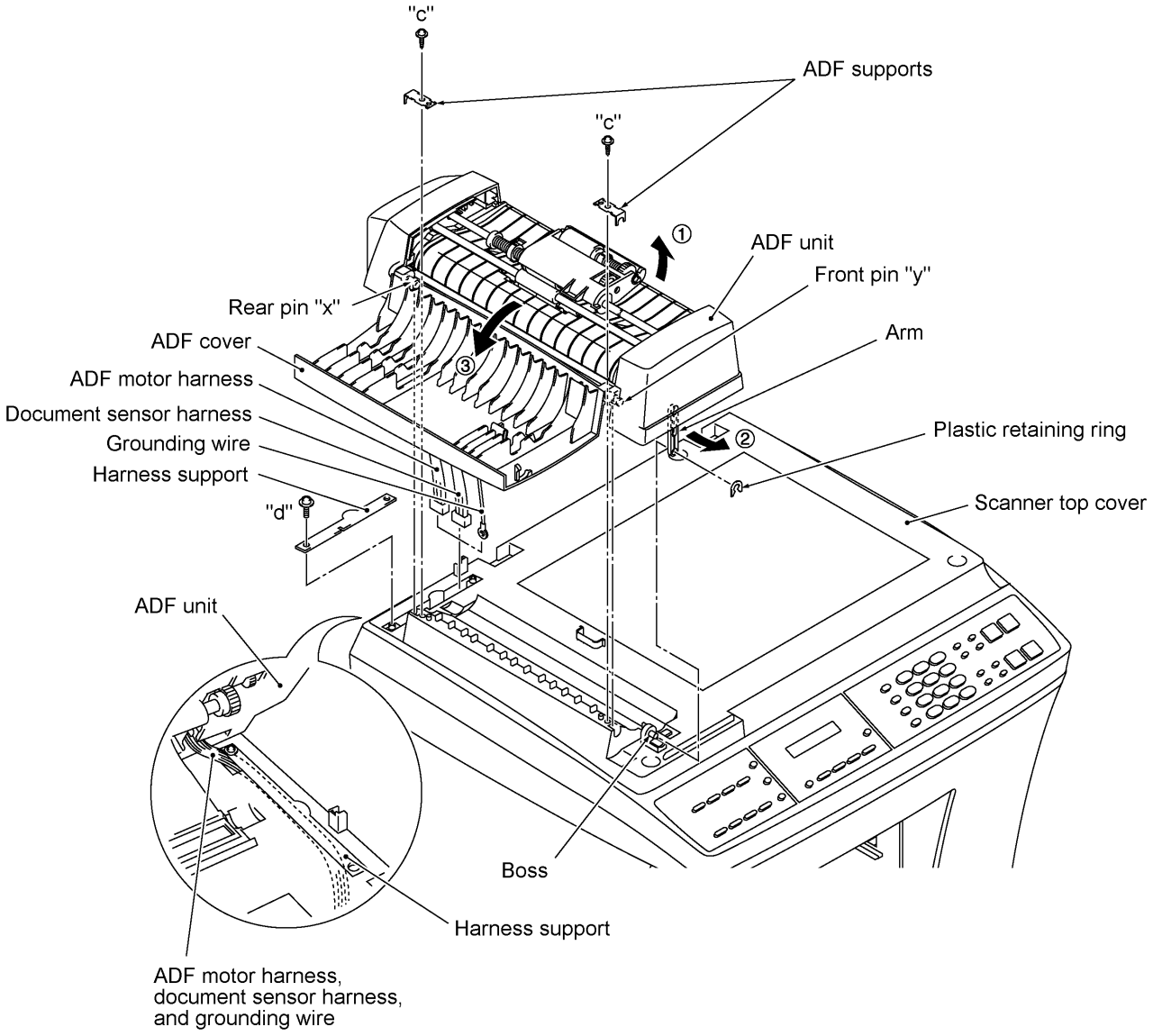
"a": Taptite, cup B M3x8
"b": Taptite, cup S M3x6

(4) Open the ADF unit (in the direction of arrow •), remove the plastic retaining ring, and release the arm (arrow ❟) from the boss provided on the scanner top cover.

(5) Open the ADF cover (arrow ƒ) and remove two screws "c."

(6) Lift up the ADF unit. The ADF supports also come off.

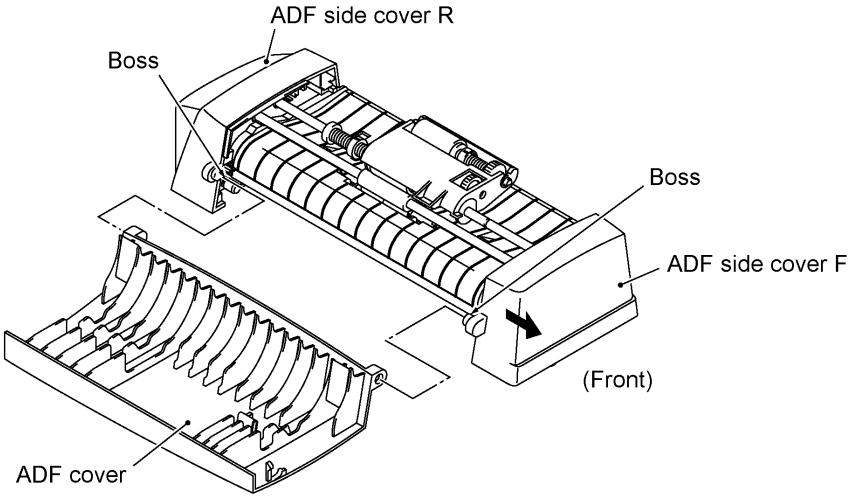
(7) Remove screw "d" from the harness support.



"c" and "d": Taptite, cup B M3x8

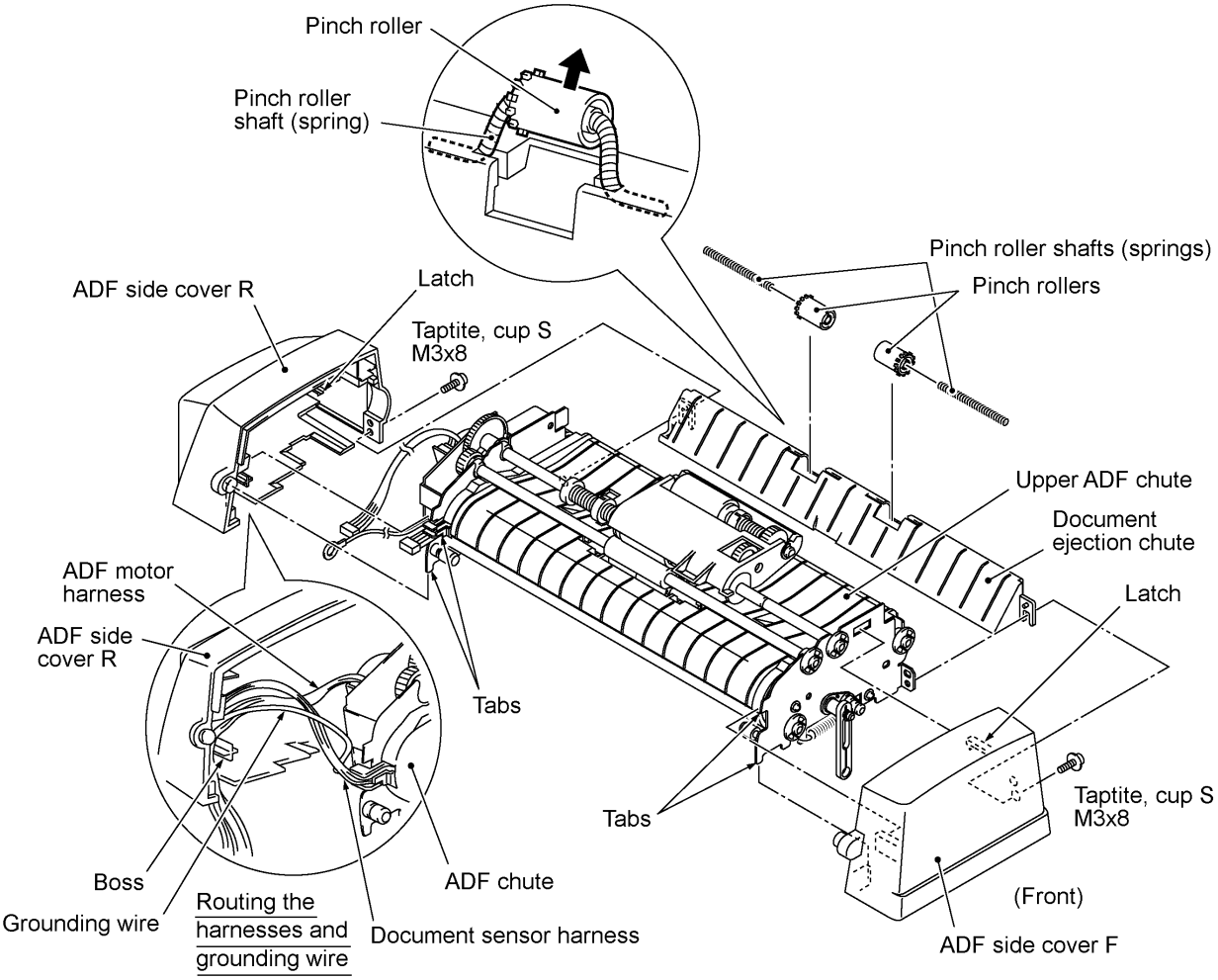
n Disassembling the ADF unit

1) Open the ADF cover. Pull the ADF side cover outwards and release the ADF cover from the bosses provided on the ADF side covers.



2) At each of the ADF side covers F and R, remove the screw, pull the unscrewed corner outwards to release it from the document ejection chute, and unhook the latch.

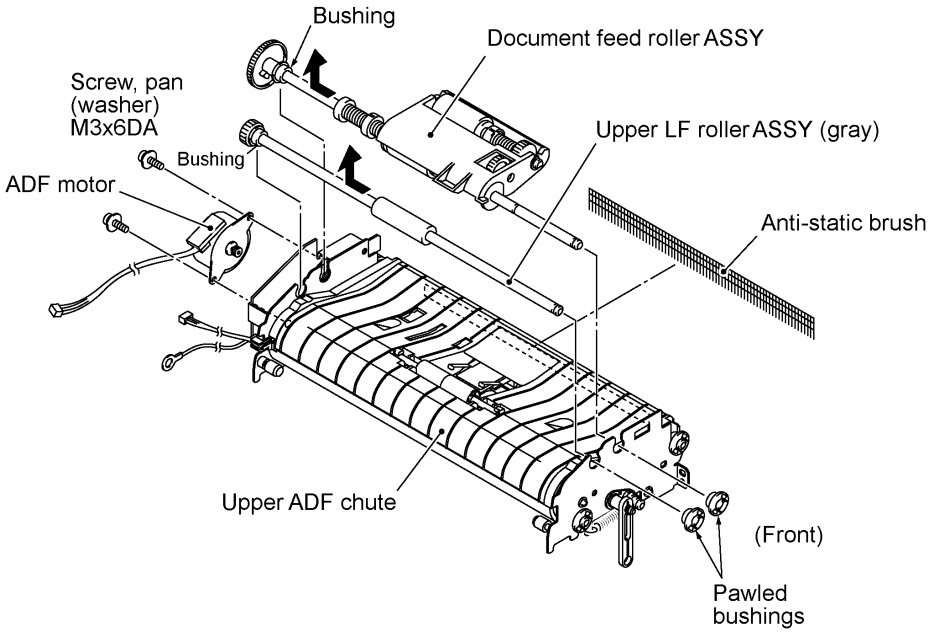
3) Remove the document ejection chute (which has been secured with the screws removed in step 2) above).



4) At the front end of the document feed roller shaft, remove the pawled bushing by pulling its pawls outwards. At the rear end, pull the bushing outwards and lift up the document feed roller ASSY.

5) At the front end of the upper LF roller (gray) shaft, remove the pawled bushing by pulling its pawls outwards. At the rear end, pull the bushing outwards and lift up the upper LF roller ASSY.

6) Remove the two screws and take off the ADF motor.



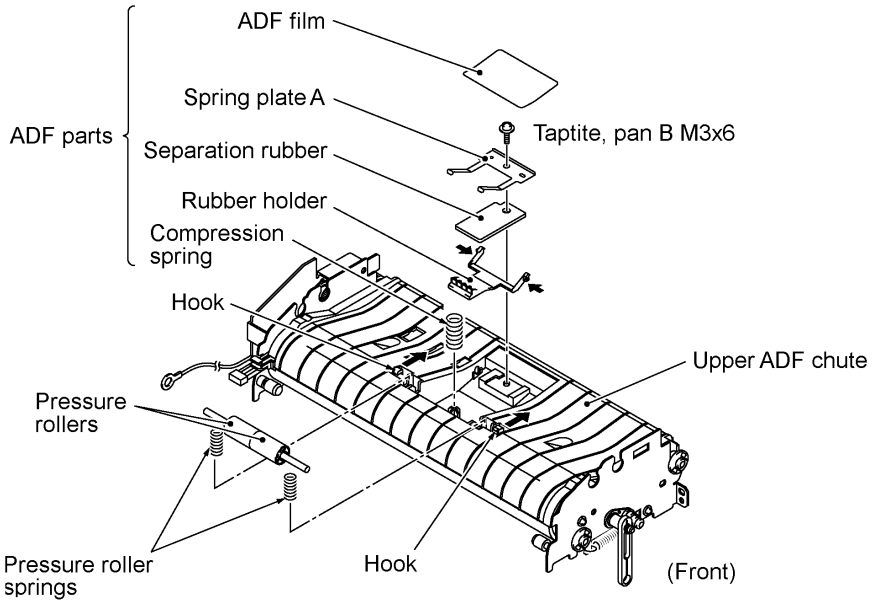
If you do not need to remove the ADF parts, skip to step 10).

7) Peel off the ADF film.

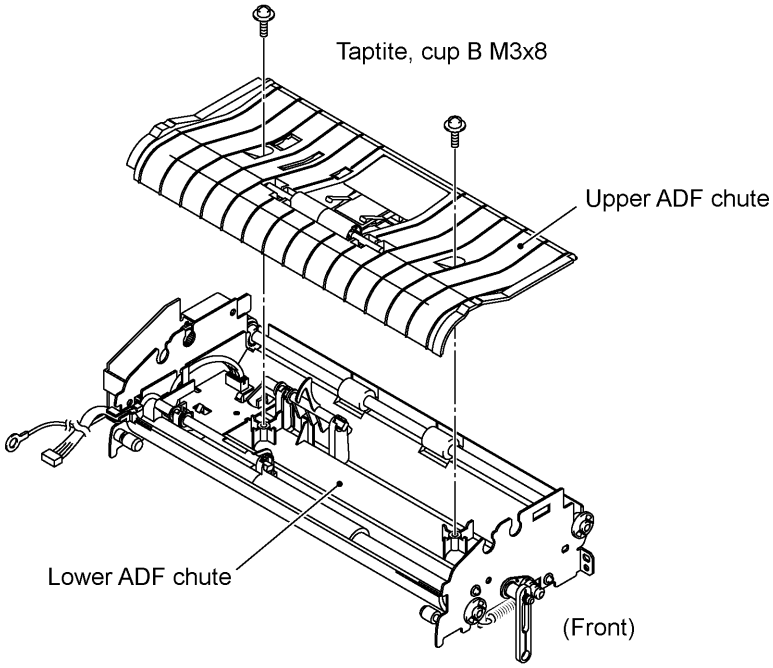
NOTE: Once removed, the ADF film will become unusable and a new part will have to be put back in.

8) Remove the screw and take off the spring plate A, separation rubber, rubber holder, and compression spring.

9) Push the hooks provided on the upper ADF chute and remove the pressure rollers and their springs.



10) Remove the two screws and lift up the upper ADF chute.

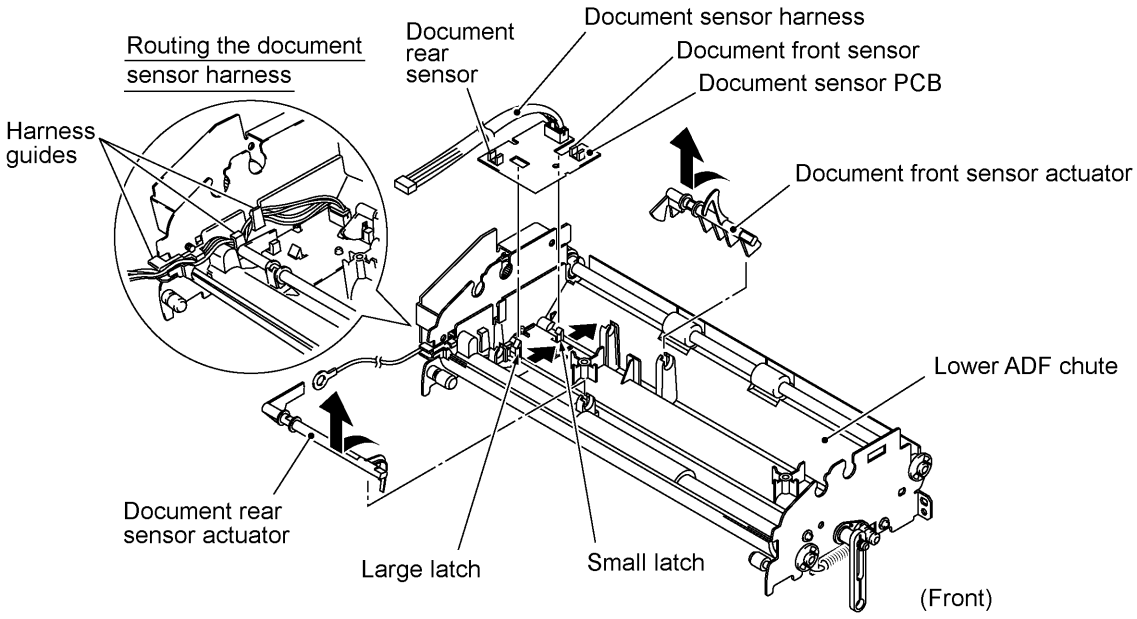


11) Turn the document front sensor actuator as shown below and lift it up.

12) Turn the document rear sensor actuator as shown below and lift it up.

13) Disconnect the document sensor harness from the document sensor PCB and take out its harness from the harness guides.

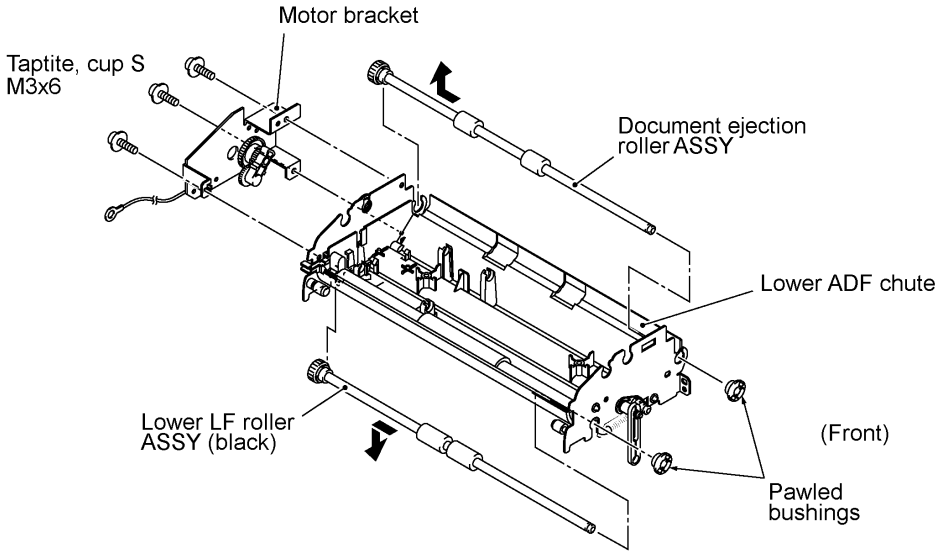
14) Unhook the two latches (large and small latches in this order) from the document sensor PCB and lift it up.



15) At the front end of the document ejection roller shaft, remove the pawled bushing by pulling its pawls outwards. At the rear end, pull the bushing outwards and lift up the document ejection roller ASSY.

16) Remove the three screws and take off the motor bracket.

17) At the front end of the lower LF roller (black) shaft, remove the pawled bushing by pulling its pawls outwards. At the rear end, pull the bushing outwards and remove the lower LF roller ASSY.



18) Turn the lower ADF chute upside down.

19) Pull the arm outwards and take it off.

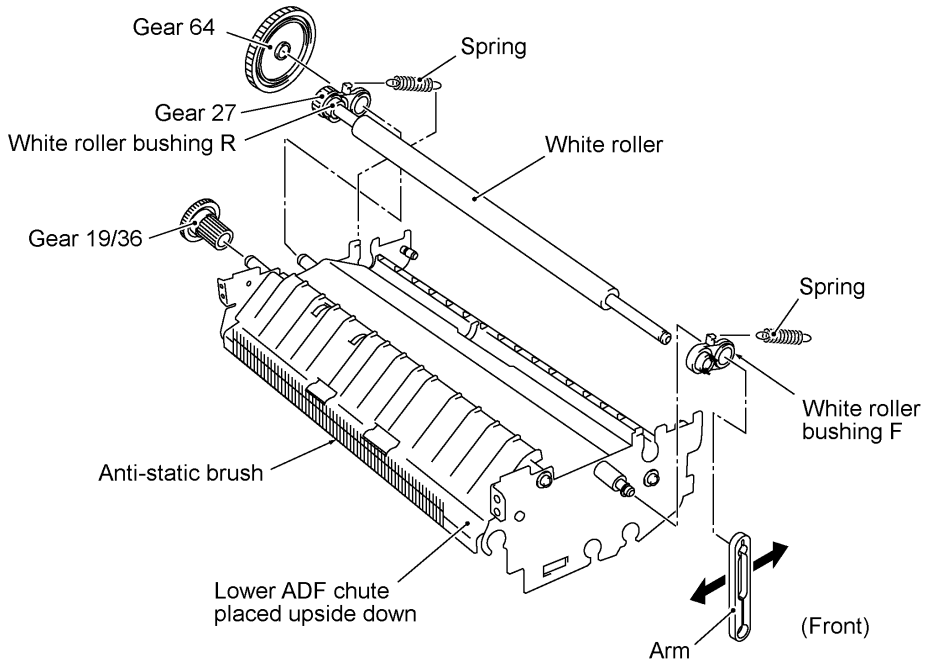
20) At the rear side of the lower ADF chute, remove the gear 19/36 by pulling its pawl outwards.

21) Remove the gear 64 by pulling its pawl outwards.

22) Unhook the two springs.

23) Pull out the white roller bushing F by pulling its pawls outwards.

24) Remove the white roller together with the white roller bushing R and gear 27.



n Reassembling Notes

- Take care not to mistake the upper LF roller ASSY (gray) for the lower LF roller ASSY (black).
- When setting the document sensor PCB back into place, do not push it down straight, but first fit the PCB in the large latch and then fit it in the small latch (see the illustration given on page IV-20).
- Be sure to route the document sensor harness through the three harness guides so that it will not interfere with the document rear sensor actuator. (See the illustration given on page IV-20.)
- Reinstall the ADF motor with its connector side facing up. (See the illustration given on page IV-19.)
- Reinstall the ADF side covers so that the tabs of the ADF side plates become fitted inside the ribs provided on the ADF side covers. (See the illustration given on page IV-18.)
- When reinstalling the ADF side cover R, be sure to route the document sensor harness, ADF motor harness, and grounding wire between the boss and the ADF side cover R. (See the illustration given on page IV-18.)
- When reinstalling the ADF unit, first set the ADF support onto rear pin "x" of the ADF unit, set the ADF unit back into place, set the other ADF support onto front pin "y," then secure those ADF supports with two screws "c." (See the illustration given on page IV-17.)

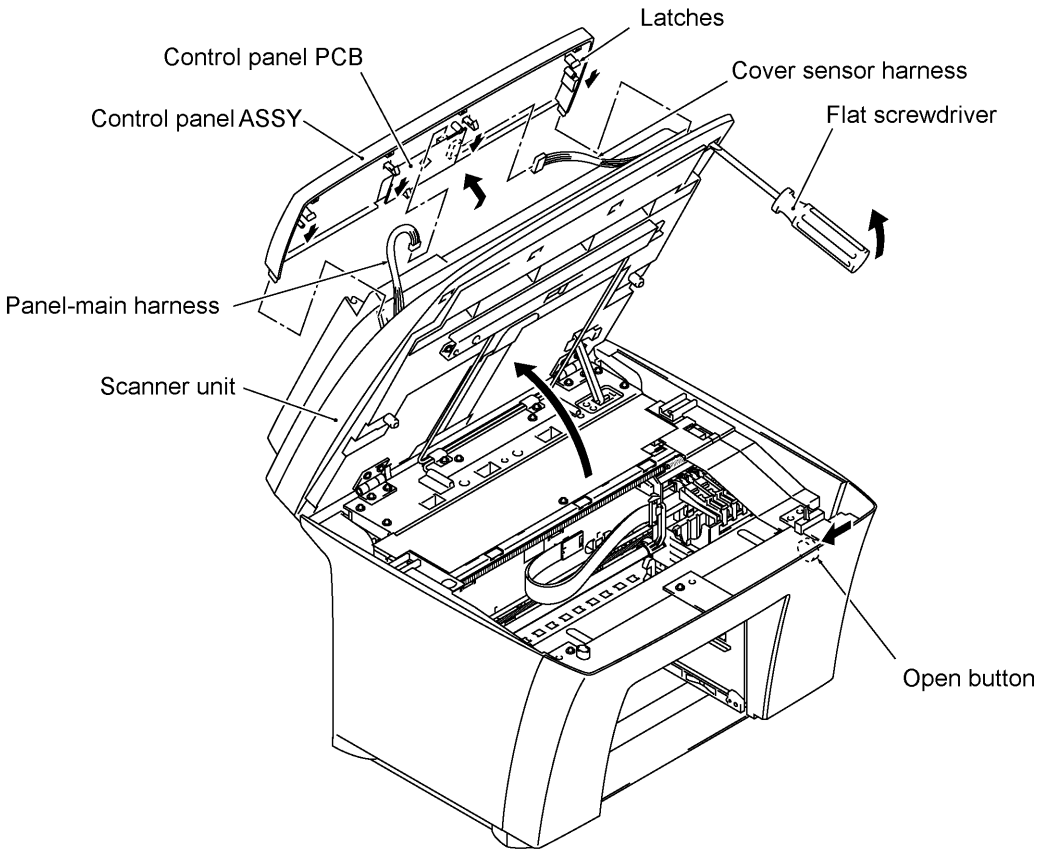
1.7 Control Panel ASSY, Cover Sensor PCB, and Cover Sensor Actuator

(1) Push the open button to open the scanner unit.

(2) Insert the tip of a flat screwdriver into each of the four holes provided in the bottom of the scanner unit and unhook the four latches while lifting up the control panel ASSY.

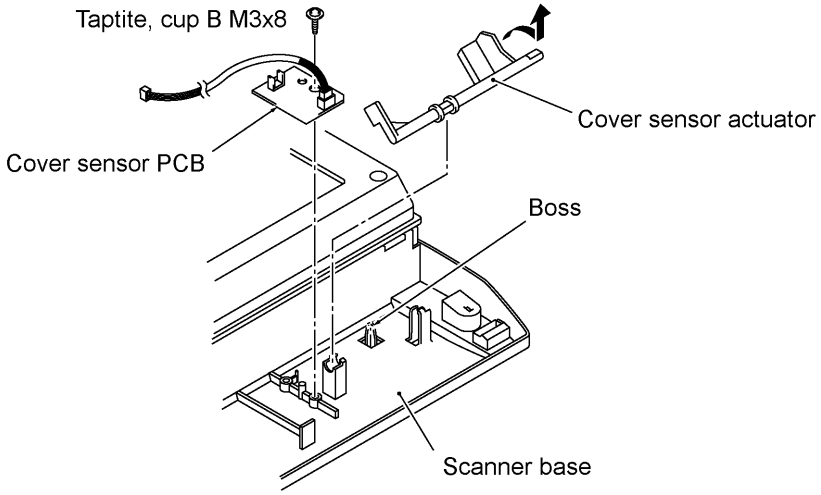
(3) Slightly slide the control panel ASSY towards you to separate it from the scanner unit.

(4) Disconnect the cover sensor harness and panel-main harness from the control panel PCB.



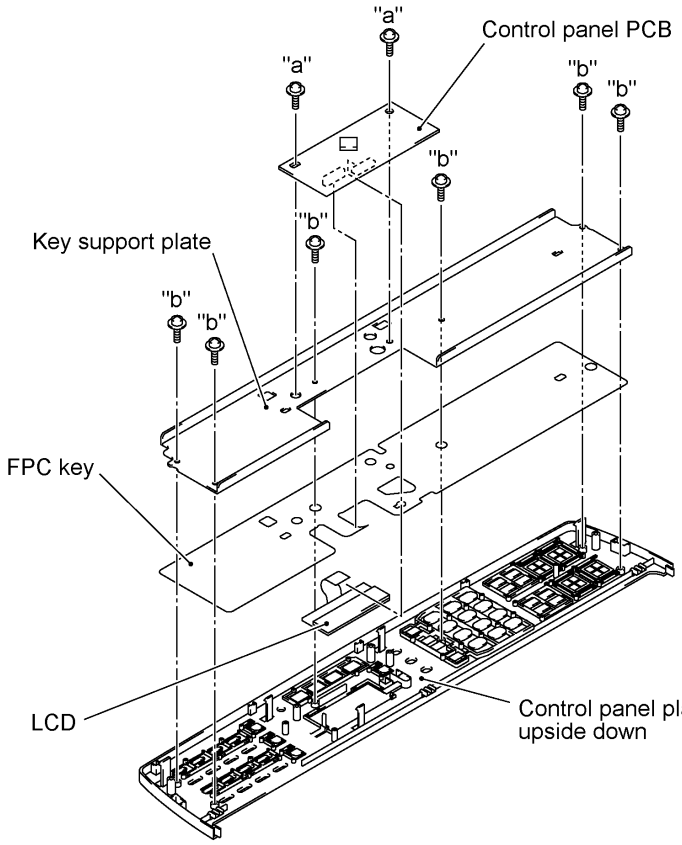
(5) Turn the cover sensor actuator as shown below and lift it up.

(6) Remove the screw and take off the cover sensor PCB.



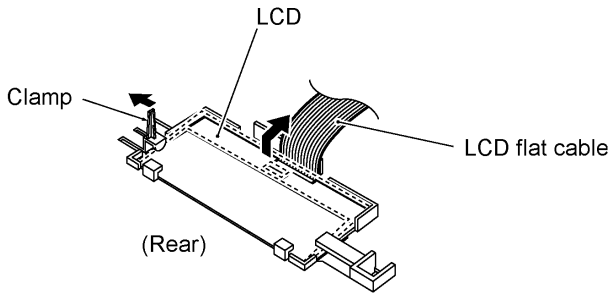
n Disassembling the Control Panel ASSY

1) Turn the control panel ASSY upside down.
2) Remove two screws "a."
3) Slightly lift up the control panel PCB, then unlock the FPC key connector and disconnect the FPC key. Next, unlock the LCD cable connector and disconnect the LCD flat cable.
4) Remove six screws "b."
5) Remove the key support plate and FPC key.



6) As shown below, slightly pull the clamp outwards and take out the LCD while pulling the LCD flat cable gently.

   NOTE: Do not take out the LCD except when the LCD is defective and requires replacement.



n Reassembling Notes

- Before reinstalling the LCD to the control panel, wipe fingerprints or dust off the LCD surface and control panel window with a soft cloth.
- A new LCD is covered with a protection sheet. Before installing it, remove the protection sheet.

1.8 Scanner Unit

(1) Disconnect the following flat cable and harnesses from the main PCB:
- CCD flat cable
- Panel-main harness
- CCD motor harness
- Scanner HP sensor harness

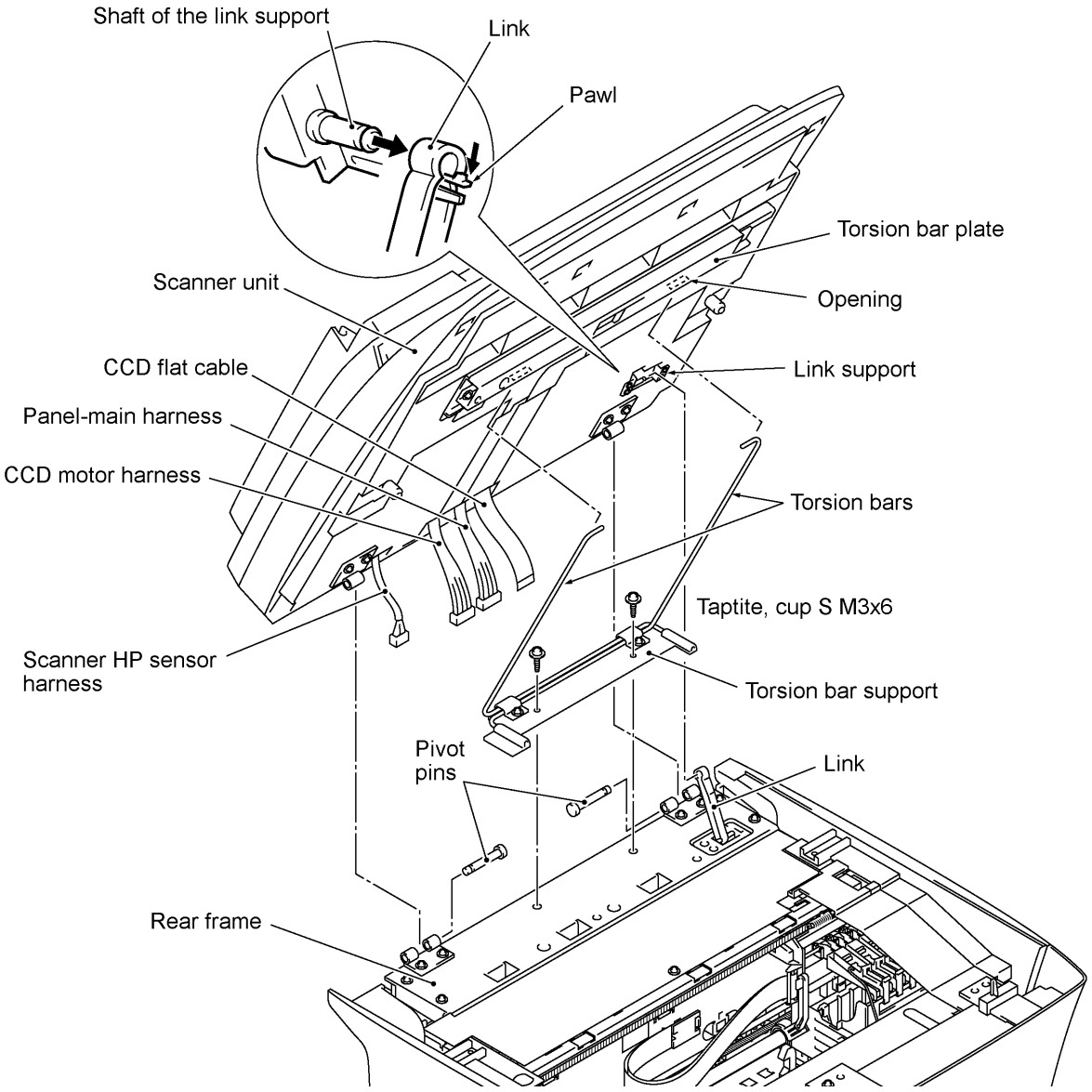
(2) Press the pawl of the link, move the link to the right, and release it from the shaft of the link support secured to the bottom of the scanner unit.

NOTE: Be careful with the scanner unit that will spring open further.

(3) Remove the two screws from the torsion bar support and take it off from the rear frame.

(4) Pull out the top ends of the torsion bars from the opening provided in the torsion bar plate.

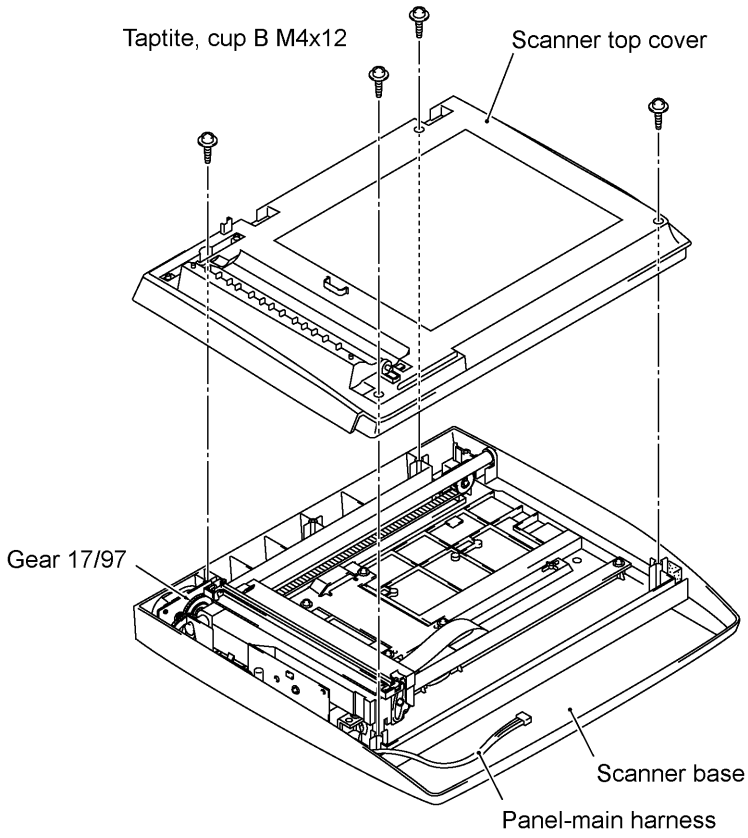
(5) Keep the scanner unit at a right angle to the machine body, and pull out the pivot pins inwards. The scanner unit may be separated.



n Disassembling the Scanner Unit

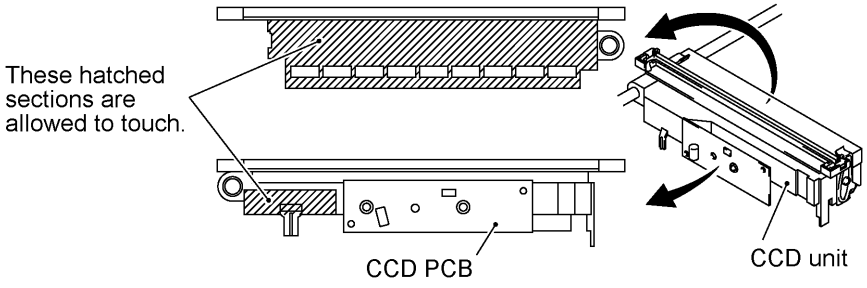
The disassembling job of the scanner unit should be done in a clean room to prevent dust or dirt from getting into the scanner unit.

1) Remove the four screws from the scanner top cover.
2) Separate the scanner top cover from the scanner base.



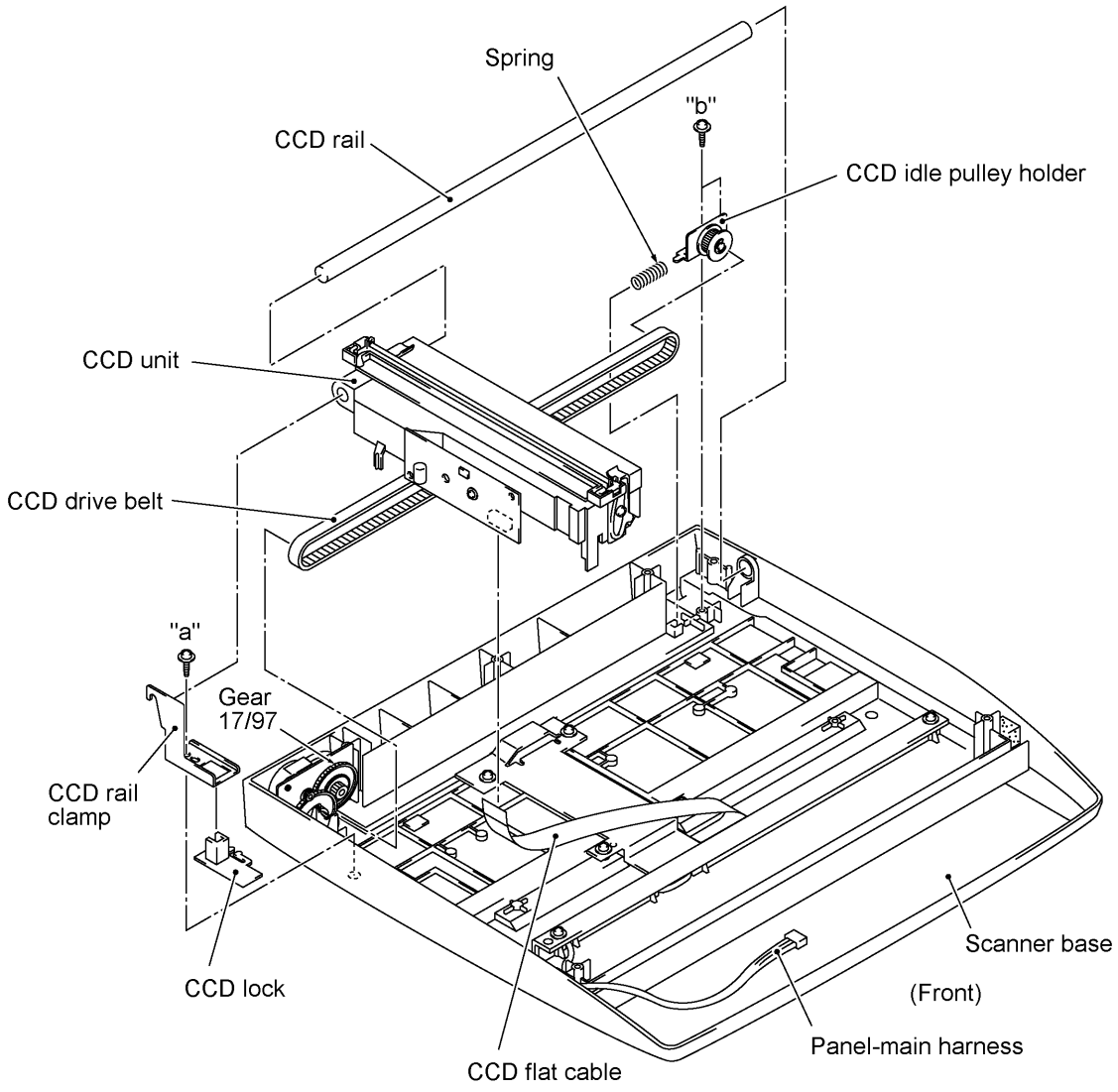
3) Turn the gear 17/97 to move the CCD unit to the right to make the following job easier.
4) Remove screw "a" and take out the CCD rail clamp. (See the illustration given on the next page.)
5) Remove two screws "b" from the CCD idle pulley holder, then remove the CCD drive belt from the idle pulley.
6) Lift up the CCD rail together with the CCD unit and CCD drive belt, and then disconnect the CCD flat cable.

NOTE: When handling the CCD unit, do not touch the CCD PCB or glasses but hold the hatched sections as shown below.



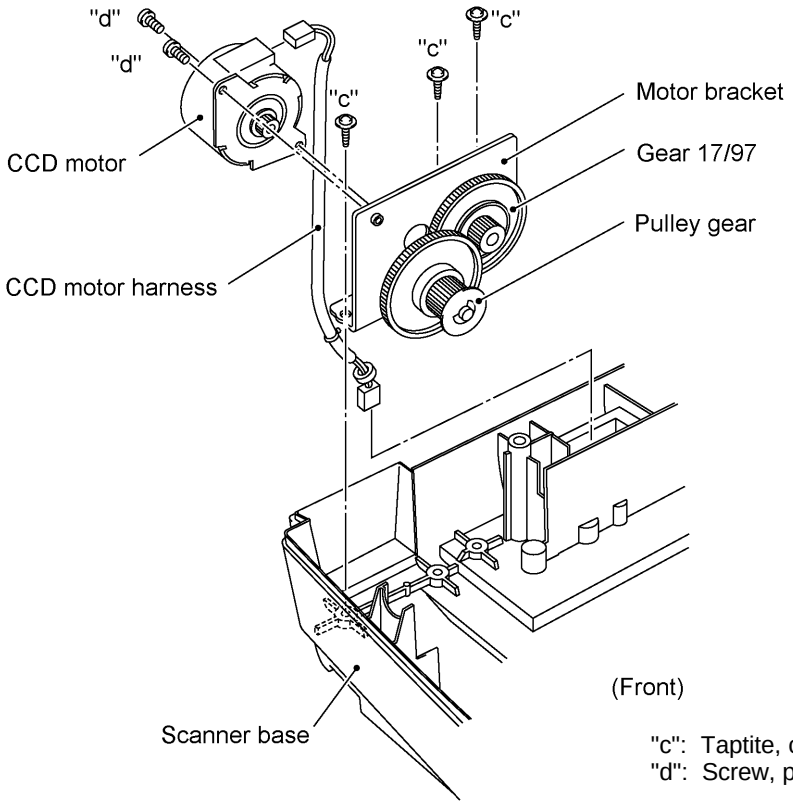
7) Pull out the CCD rail from the CCD unit.

8) Remove the CCD lock.



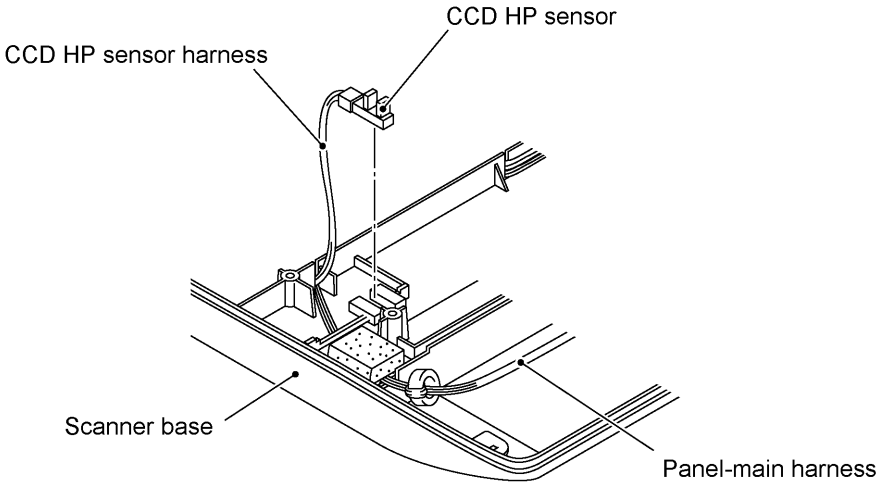
"a": Taptite, cup B M3x8
"b": Taptite, pan B M3x10

9) Pull up the CCD motor harness and disconnect it from the CCD motor.
10) Remove three screws "c" from the motor bracket.
11) Lift up the motor bracket.
12) Remove two screws "d" from the CCD motor.



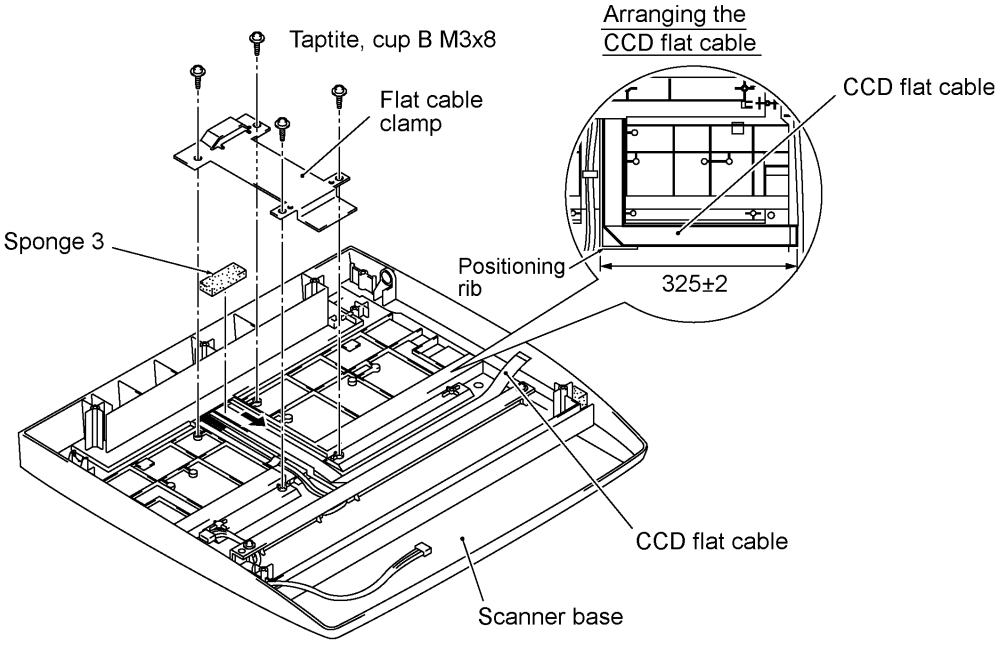
"c": Taptite, cup B M3x8
"d": Screw, pan (washer) M3x6DA

13) Disconnect the CCD HP sensor harness from the sensor.
14) Remove the CCD HP sensor.



15) Remove the four screws and take off the flat cable clamp. Remove sponge 3 attached with adhesive tape.

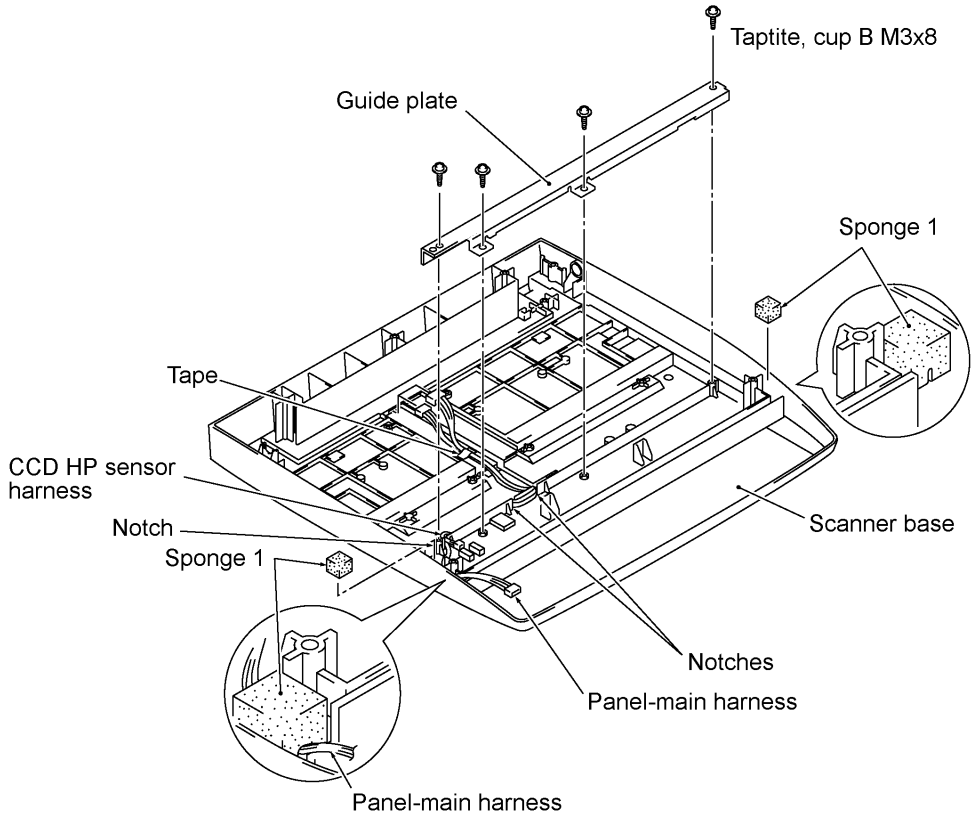
16) Remove the CCD flat cable (which is attached with adhesive tape).



17) Remove the four screws and take off the guide plate.

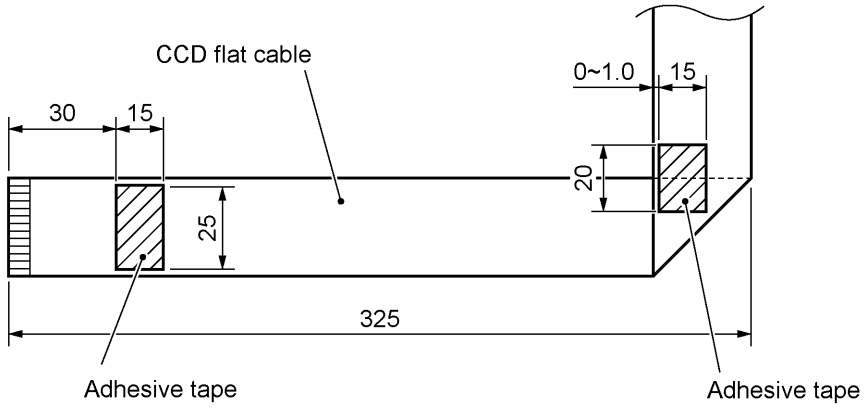
18) Remove tape and sponges 1, then take out the panel-main harness and CCD HP sensor harness.

NOTE: Once removed, the sponges 1 will become unusable and new ones will have to be put back in.



n Reassembling Notes

- Route the panel-main harness and CCD HP sensor harness through the three notches, then tape them as illustrated on the previous page.
- When replacing the CCD flat cable with a new one, be sure to arrange the new cable as illustrated below, then route it along the positioning rib as shown on the previous page.

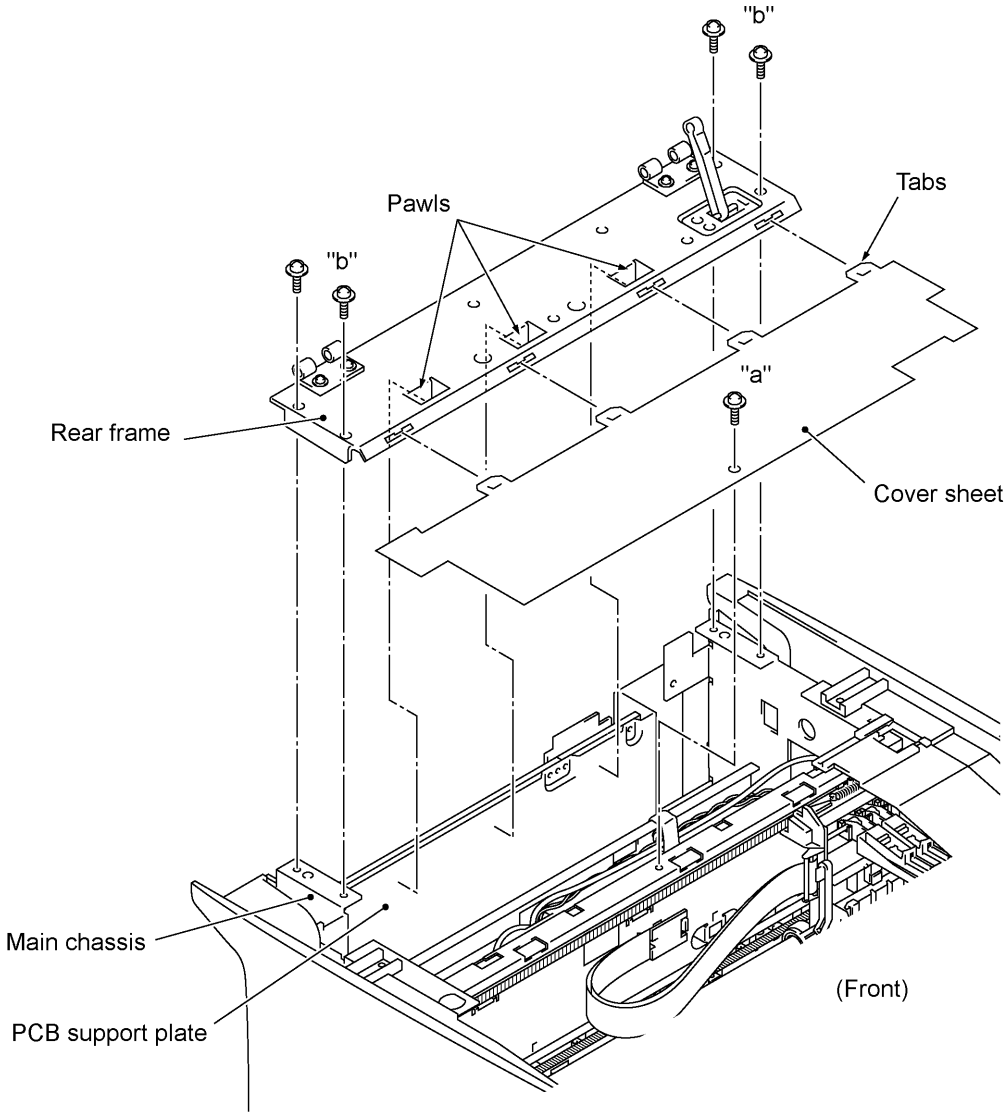


- Set the CCD motor back into place with its connector side facing up as shown on page IV-28.
- Set the CCD lock in the release (forward) position. If the CCD lock is placed in the lock position, the CCD home positioning will fail in the next powering-up sequence. If this happens, turn the CCD lock to the release position.

1.9 Cover Sheet and Rear Frame

(1) Remove screw "a" and take off the cover sheet.

(2) Remove four screws "b" and take off the rear frame.



"a" and "b": Taptite, cup S M3x6

n Reassembling Notes

- When setting the rear frame back into place, fit its pawls over the top edge of the PCB support plate as shown above.
- When setting the cover sheet back into place, fit its tabs into the cutouts provided in the rear frame as shown above.

1.10 Inner Cover and Front Cover

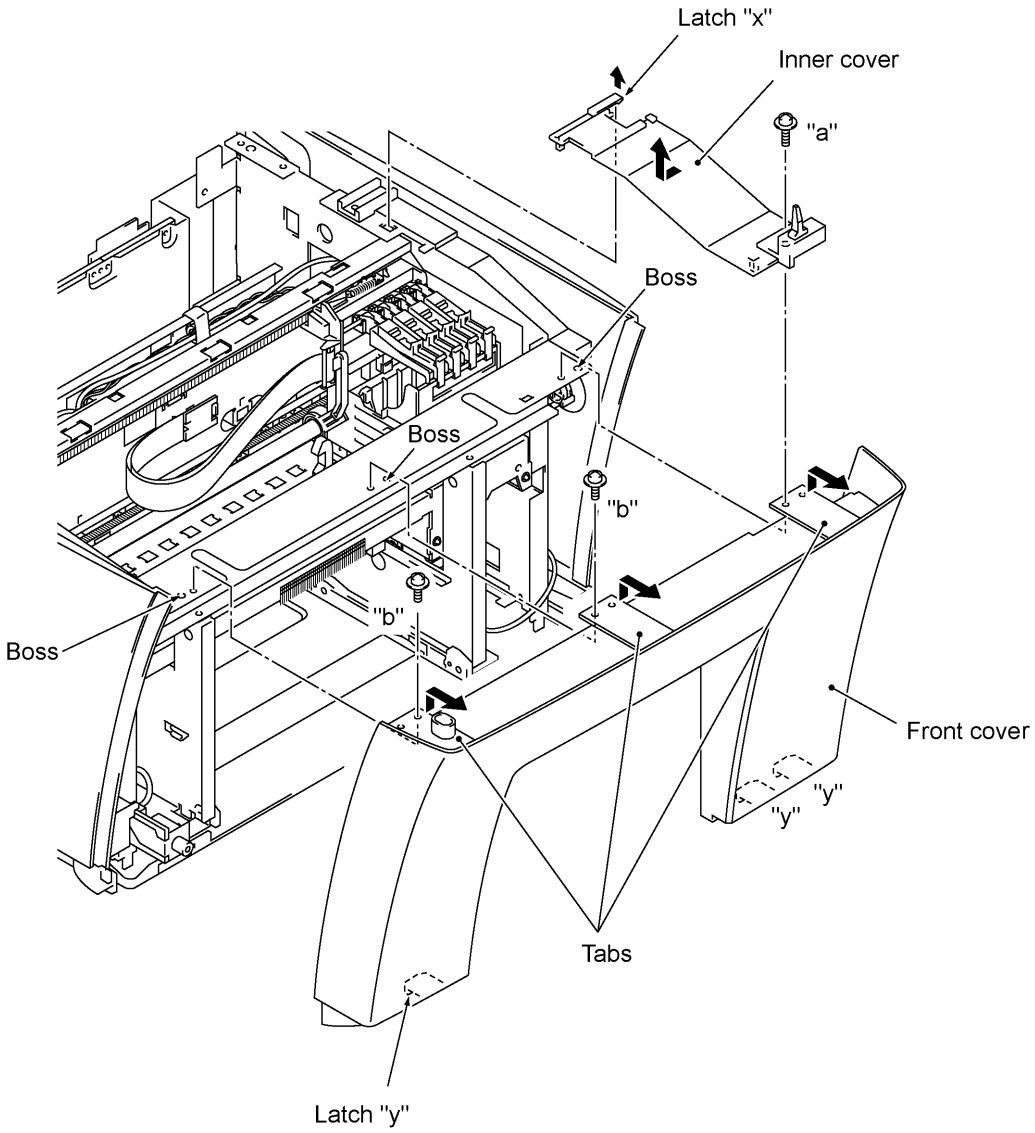
(1) If the scanner unit has not been removed, push the open button to open the scanner unit.

(2) Remove screw "a" from the inner cover.

(3) Unhook latch "x" and shift the inner cover to the left and up.

(4) Remove two screws "b."

(5) Slightly pull up three tabs to release them from bosses and then remove the front cover to the front.



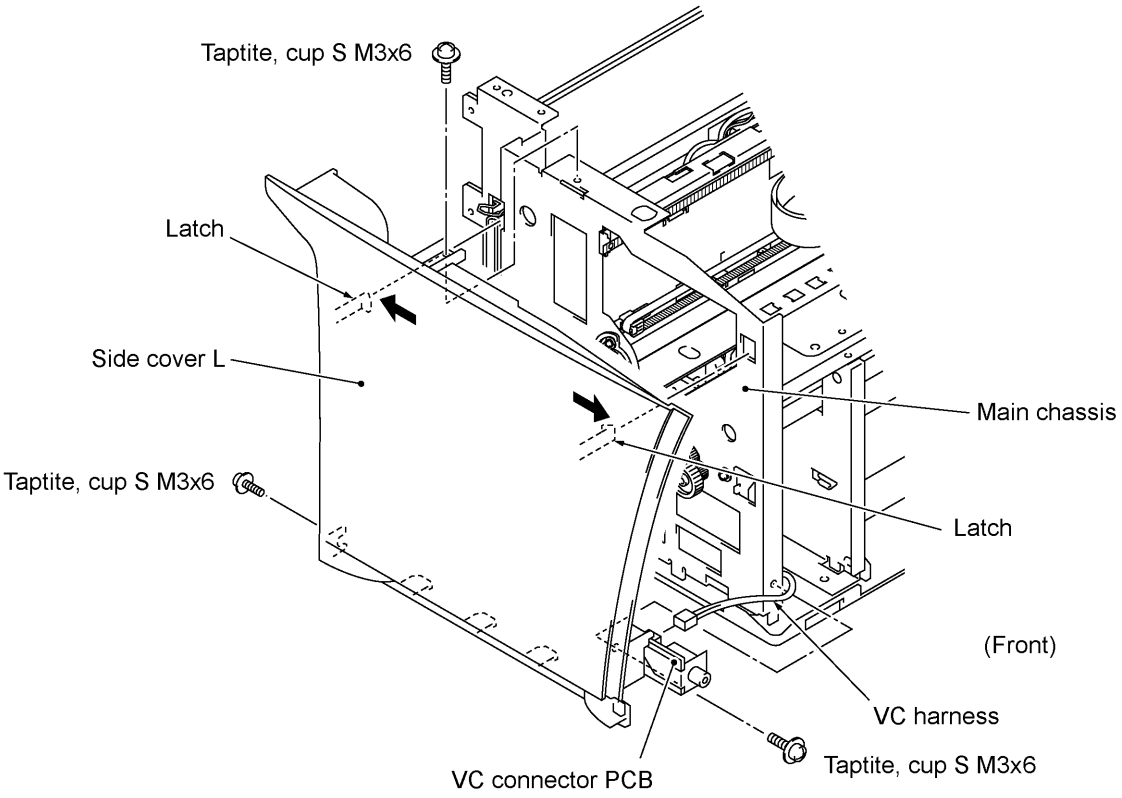
"a": Taptite, cup S M3x10
"b": Taptite, cup S M3x6

1.11 Side Cover L and VC Connector PCB

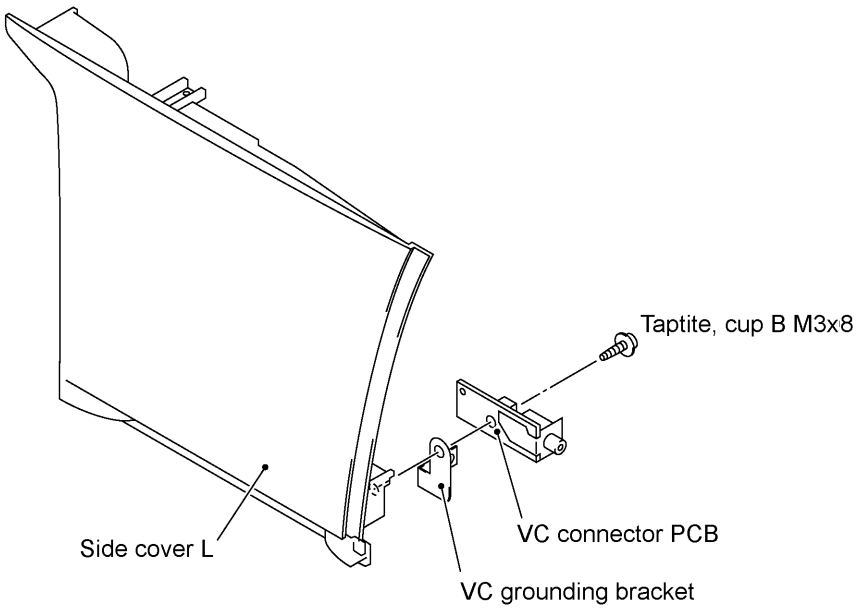
(1) Remove three screws.

(2) Disconnect the VC harness from the VC connector PCB.

(3) Unhook the two latches from the main chassis and remove the side cover L together with the VC connector PCB.



(4) Remove the screw and take off the VC connector PCB and VC grounding bracket.



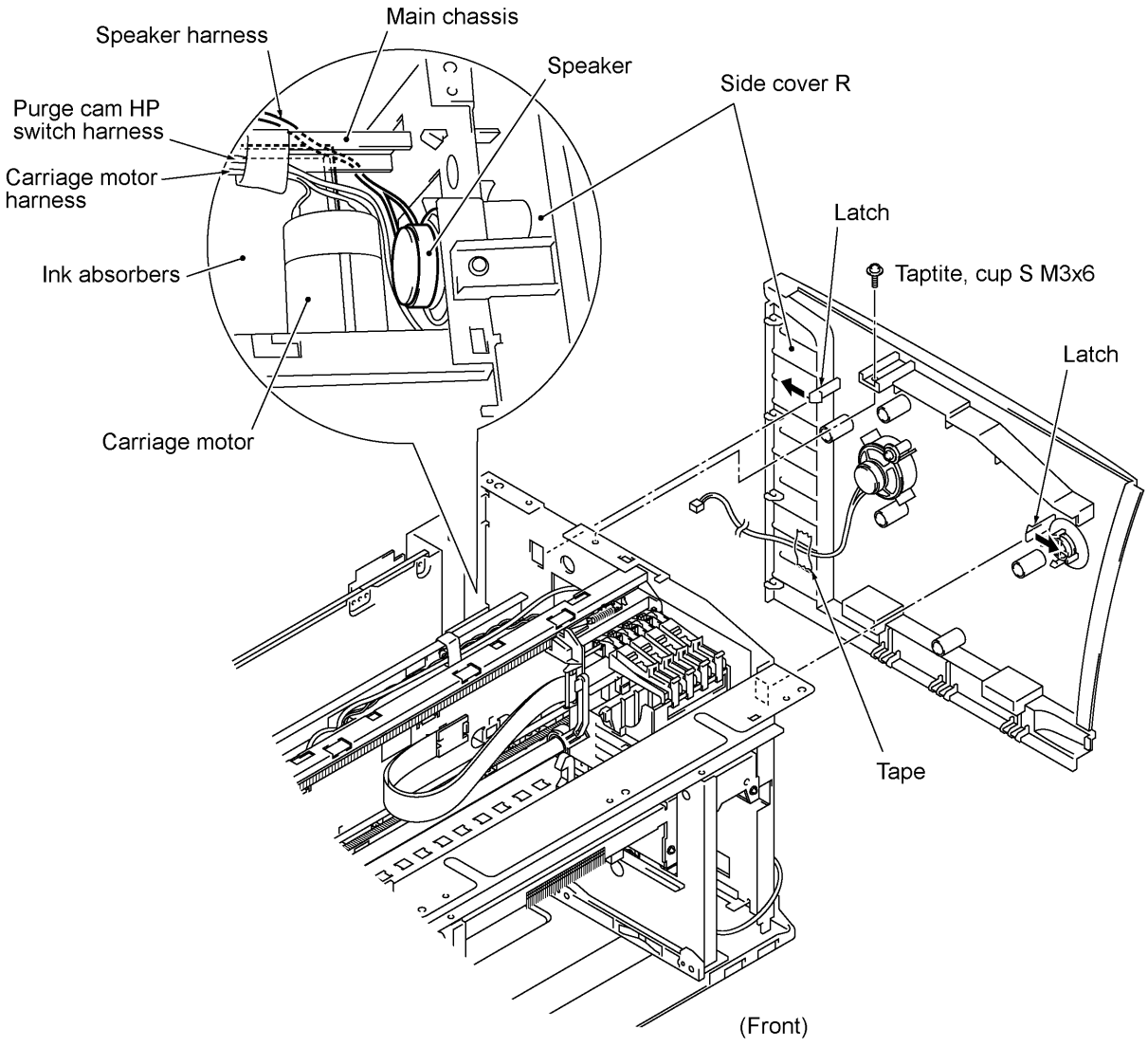
1.12 Side Cover R and Speaker

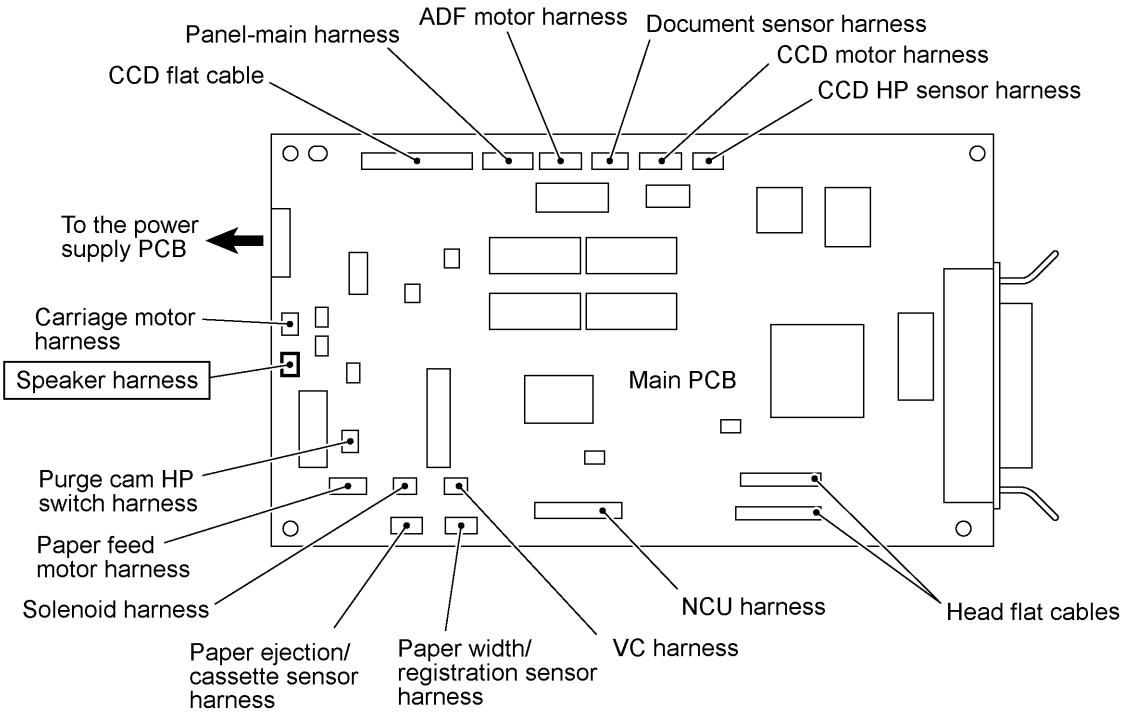
(1) Open the cable clamp (see the illustration given on page IV-36) and release the harnesses.

(2) Disconnect the speaker harness from the main PCB. (See the illustration given on the next page.)

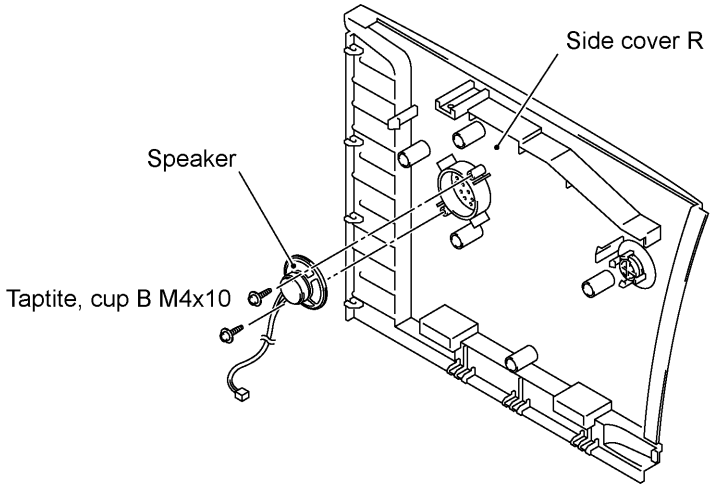
(3) Remove the screw from the top of the side cover R.

(4) Unhook the two latches from the main chassis and remove the side cover R together with the speaker.



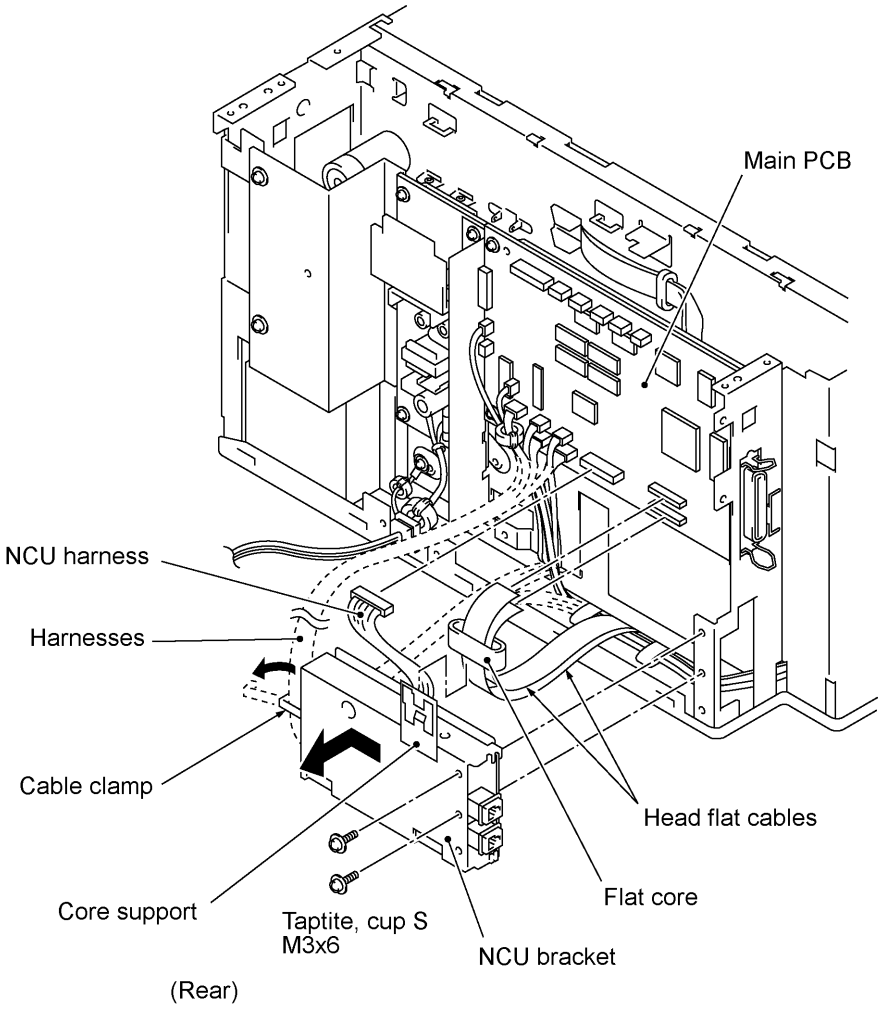


(5) Remove the two screws and take out the speaker.



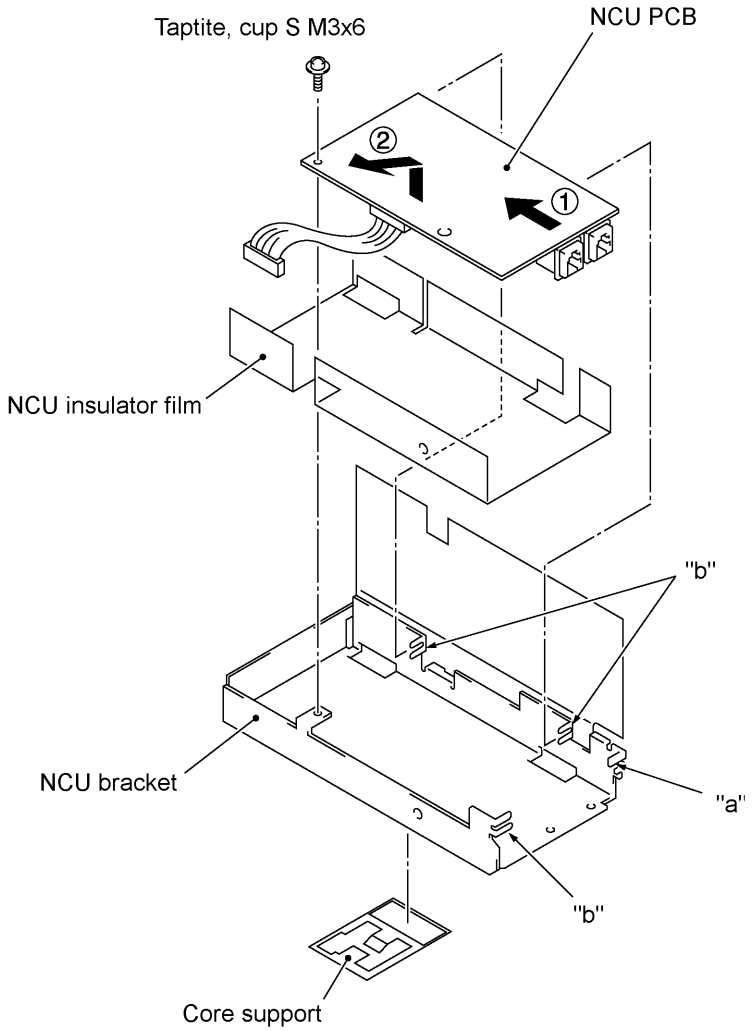
1.13 NCU PCB

(1) Disconnect the head flat cables from the main PCB.
(2) Pull the flat core of the head flat cables up and off the core support.
(3) Disconnect the NCU harness from the main PCB.
(4) Open the cable clamp and release the harnesses.
(5) Remove the two screws (three screws if the side cover L has not been removed).
(6) Slide the NCU bracket to the left (when viewed from the rear) and to the rear.



(7) Remove the screw.

(8) Take out the NCU PCB in the direction of arrows • and ❟.



n Reassembling Notes

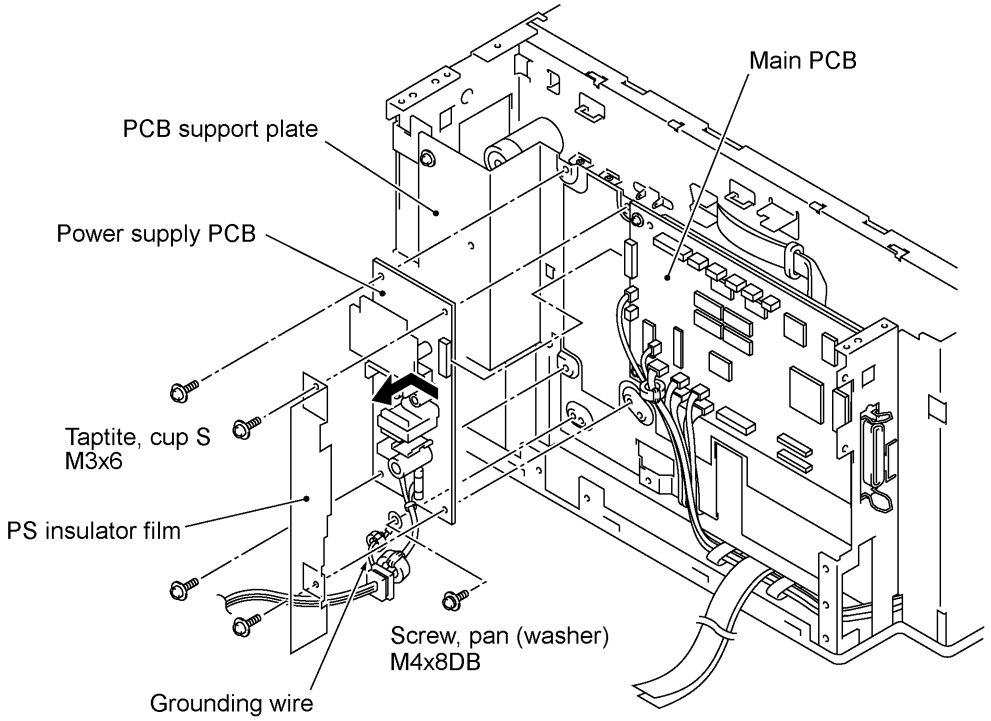
- When setting the NCU PCB back into its bracket, fit its edges onto "a" and into "b" as shown above.

1.14 Power Supply PCB

(1) Remove the four screws from the power supply PCB.

(2) Remove the screw from the grounding wire.

(3) Slide the power supply PCB to the left (when viewed from the rear) to disconnect it from the main PCB, then take it out together with the PS insulator film.



1.15 Main PCB

(1) Disconnect the following harnesses and flat cables from the main PCB:

- Carriage motor harness
- Speaker harness (if the speaker has not been removed)
- Purge cam HP switch harness
- Paper feed motor harness
- Solenoid harness
- Paper ejection/cassette sensor harness
- Paper width/registration sensor harness
- VC harness
- NCU harness
- Head flat cables

} (if the NCU PCB has not been removed)

- CCD flat cable
- Panel-main harness
- CCD motor harness
- CCD HP sensor harness

} (if the scanner unit has not been removed)

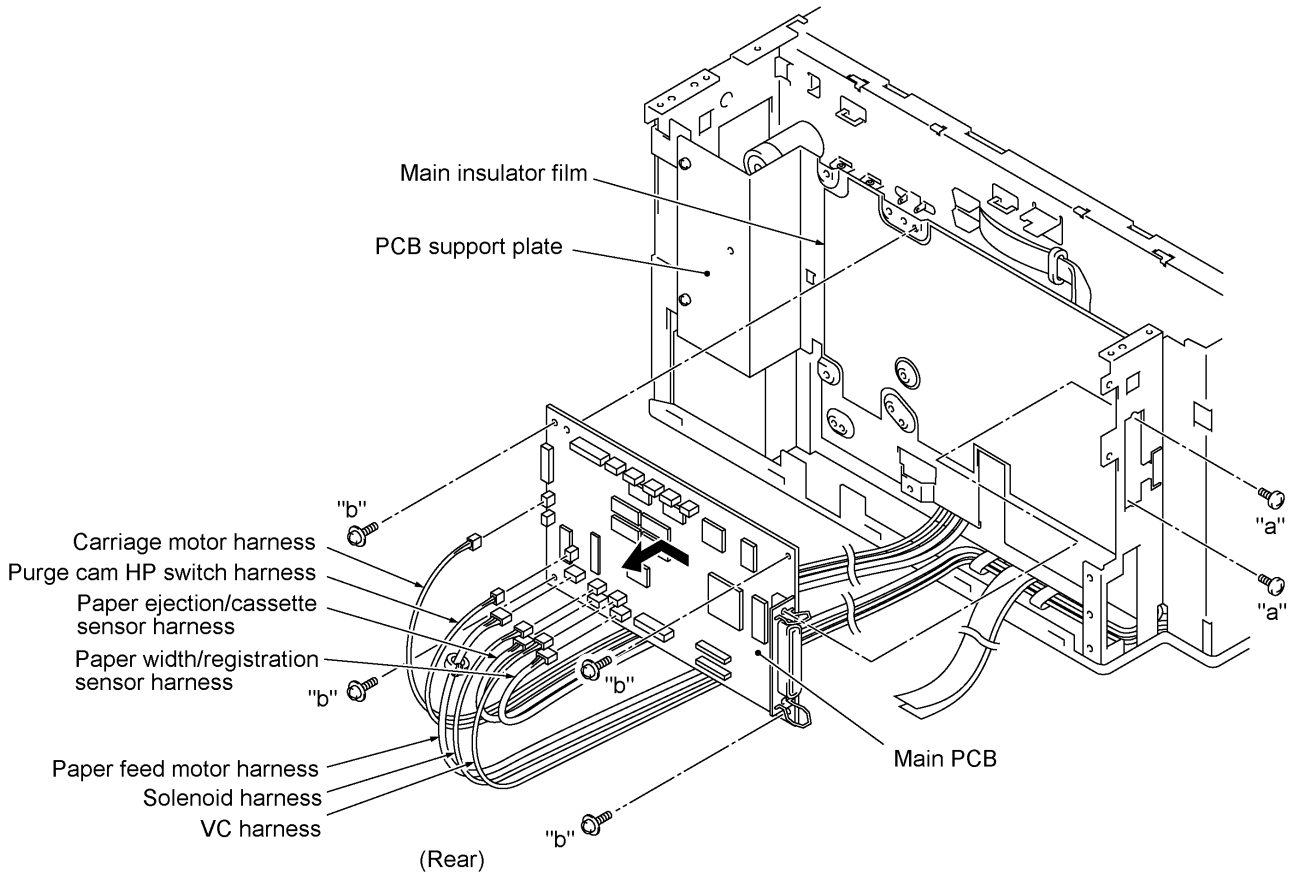
- ADF motor harness
- Document sensor harness

} (if the ADF unit has not been removed)

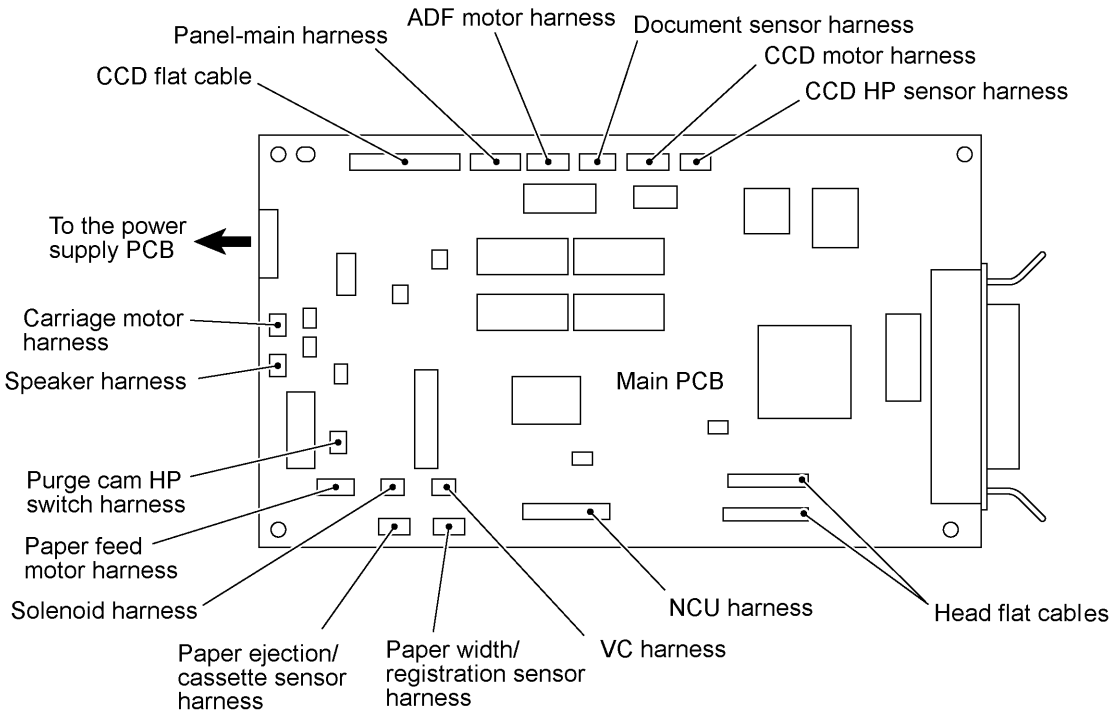
(2) Remove two screws "a" from the interface connector.

(3) Remove four screws "b" from the main PCB.

(4) Slide the main PCB to the left (when viewed from the rear) and to the rear.



"a": Machine screw, pan M3x6
"b": Taptite, cup S M3x6



(5) Remove the main insulator film.

n Reassembling Notes

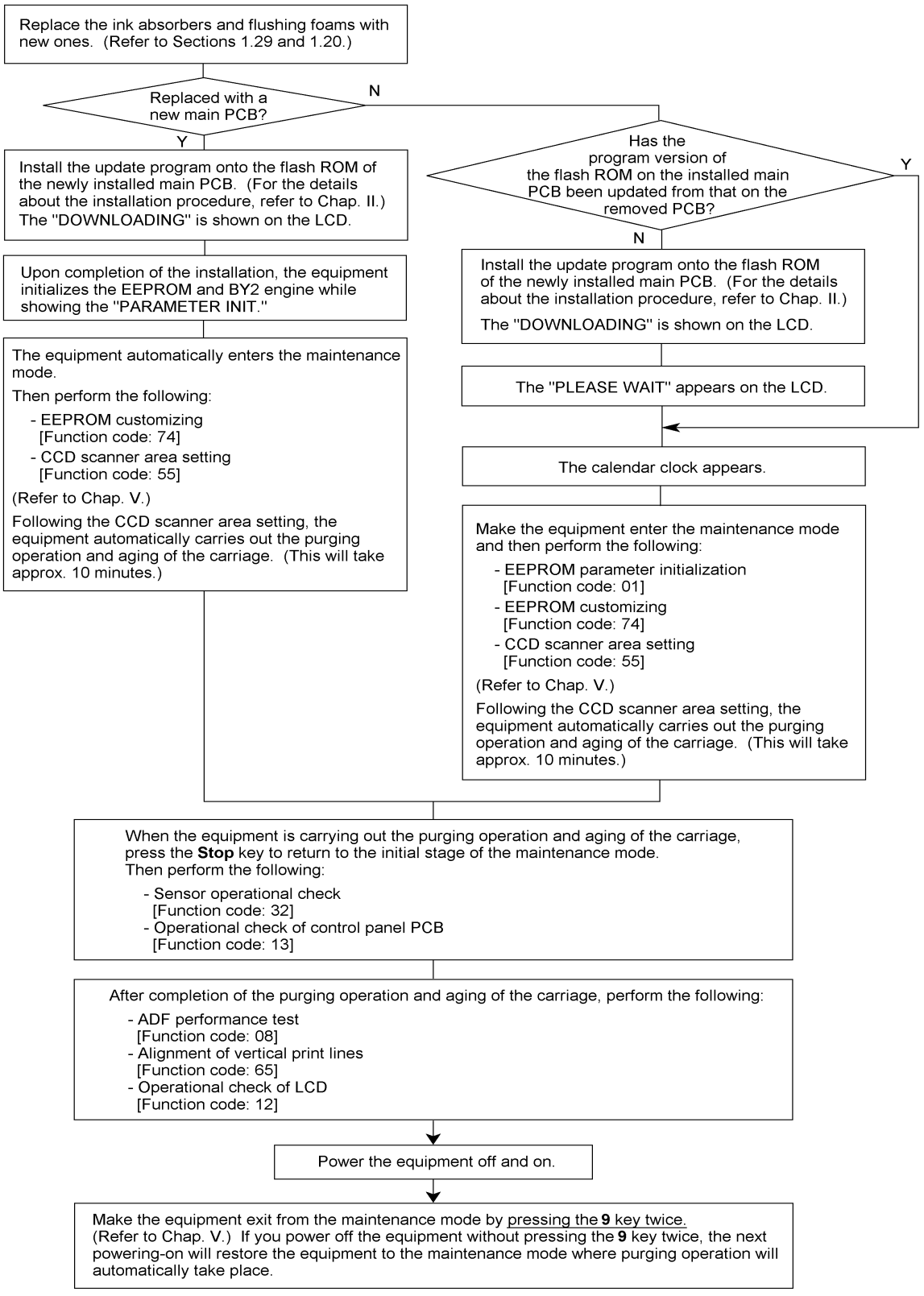
- After you replace the main PCB, be sure to follow the flowchart given on the next page.

Setting up the main PCB after replacement

- **Important** -

NOTE: Before starting the following procedure, make sure that the print head unit is installed.

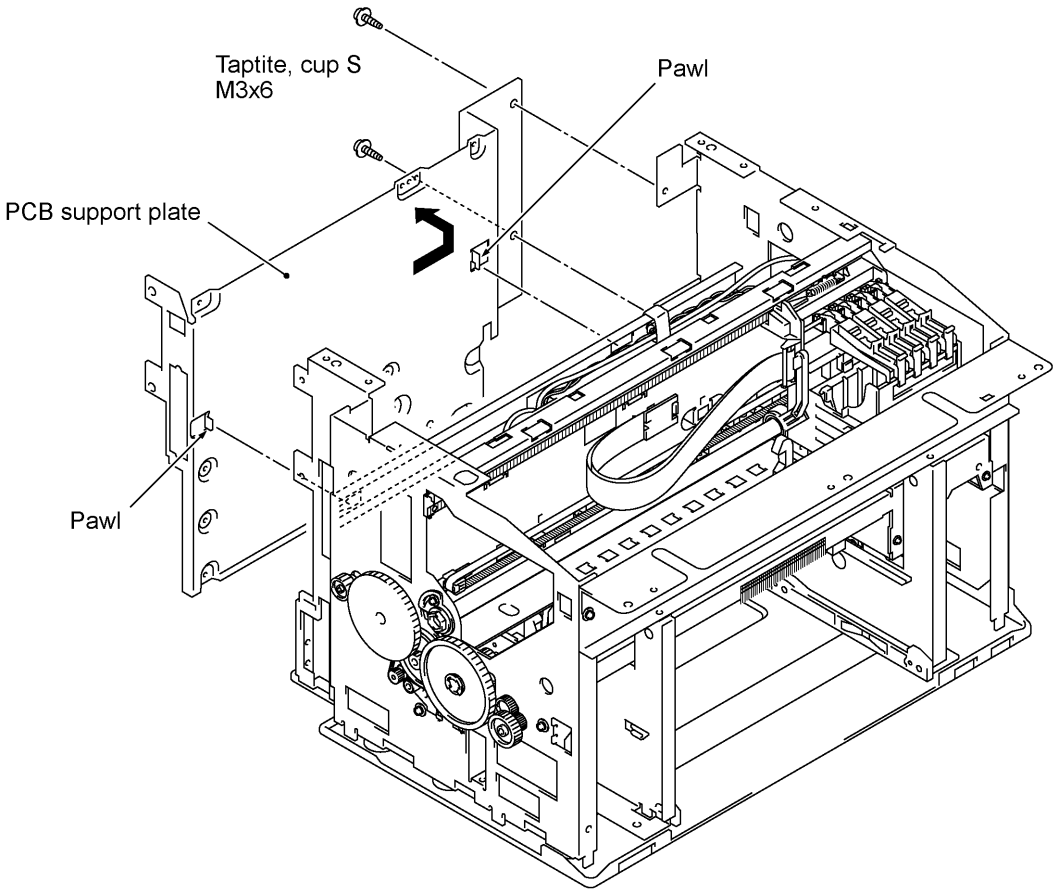
NOTE: When replacing the main PCB, it is recommended that you replace all ink cartridges in order to maintain accurate ink level information.


Replace the ink absorbers and flushing foams with new ones. (Refer to Sections 1.29 and 1.20.)
Replaced with a new main PCB?
N
Y
Install the update program onto the flash ROM of the newly installed main PCB. (For the details about the installation procedure, refer to Chap. II.)
The "DOWNLOADING" is shown on the LCD.
Upon completion of the installation, the equipment initializes the EEPROM and BY2 engine while showing the "PARAMETER INIT."
The equipment automatically enters the maintenance mode.
Then perform the following:
- EEPROM customizing [Function code: 74]
- CCD scanner area setting [Function code: 55]
(Refer to Chap. V.)
Following the CCD scanner area setting, the equipment automatically carries out the purging operation and aging of the carriage. (This will take approx. 10 minutes.)
Has the program version of the flash ROM on the installed main PCB been updated from that on the removed PCB?
Y
N
Install the update program onto the flash ROM of the newly installed main PCB. (For the details about the installation procedure, refer to Chap. II.)
The "DOWNLOADING" is shown on the LCD.
The "PLEASE WAIT" appears on the LCD.
The calendar clock appears.
Make the equipment enter the maintenance mode and then perform the following:
- EEPROM parameter initialization [Function code: 01]
- EEPROM customizing [Function code: 74]
- CCD scanner area setting [Function code: 55]
(Refer to Chap. V.)
Following the CCD scanner area setting, the equipment automatically carries out the purging operation and aging of the carriage. (This will take approx. 10 minutes.)
When the equipment is carrying out the purging operation and aging of the carriage, press the Stop key to return to the initial stage of the maintenance mode.
Then perform the following:
- Sensor operational check [Function code: 32]
- Operational check of control panel PCB [Function code: 13]
After completion of the purging operation and aging of the carriage, perform the following:
- ADF performance test [Function code: 08]
- Alignment of vertical print lines [Function code: 65]
- Operational check of LCD [Function code: 12]
Power the equipment off and on.
Make the equipment exit from the maintenance mode by pressing the 9 key twice.
(Refer to Chap. V.) If you power off the equipment without pressing the 9 key twice, the next powering-on will restore the equipment to the maintenance mode where purging operation will automatically take place.

1.16 PCB Support Plate

(1) Remove the two screws from the PCB support plate.

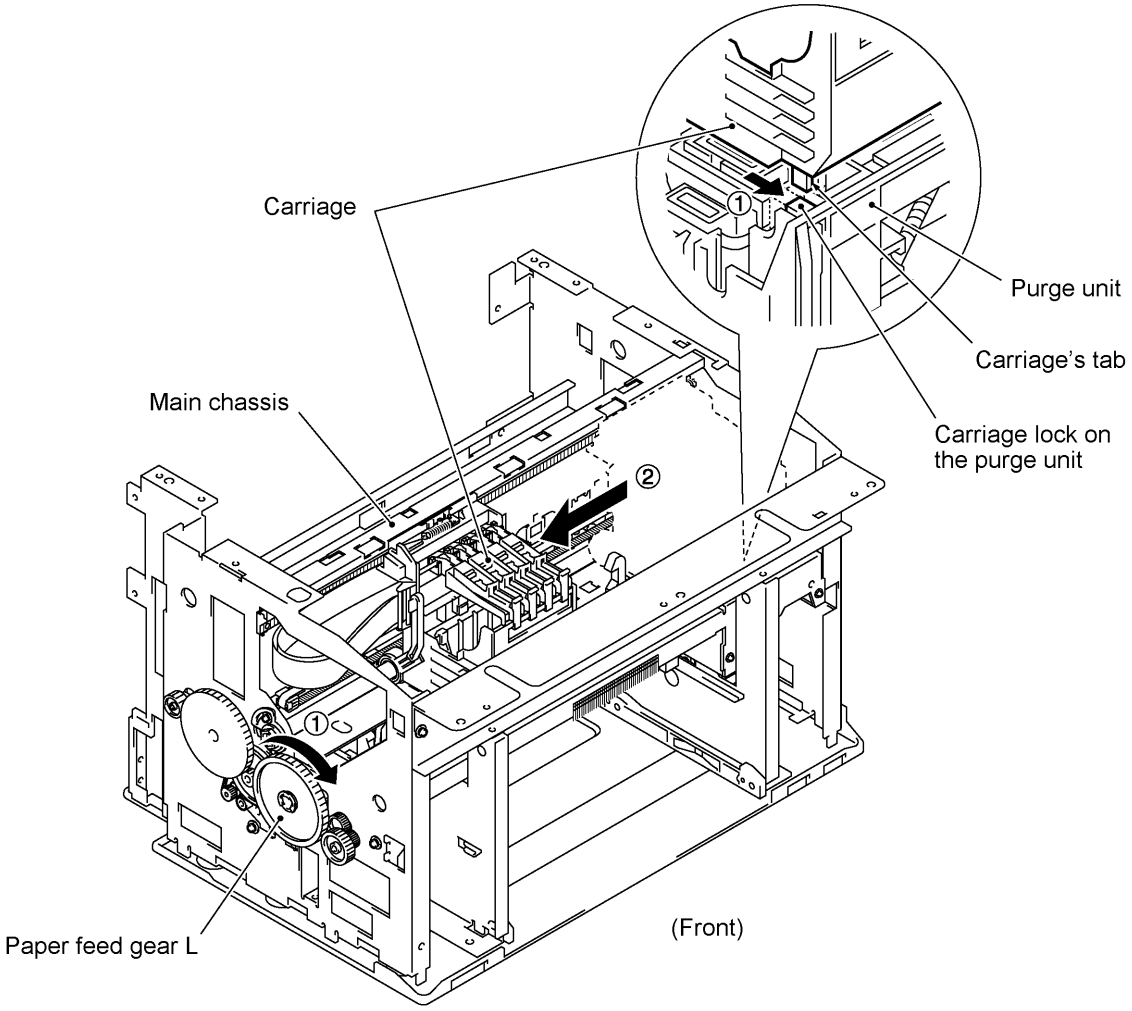
(2) Slide the PCB support plate to the left (when viewed from the rear) and lift it up.



1.17 Purge Unit

> **Caution** Once removed, the components given in this subsection require the purge unit adjuster for reassembly. Refer to Section 3, "ADJUSTMENT" in this chapter.

(1) Attempt to move the carriage to the left. If the carriage is locked in the home position, turn the paper feed gear L clockwise (when viewed from the left) to retract the carriage lock (in the direction of arrow •). Then move the carriage to the left and out of the home position (arrow ❟).

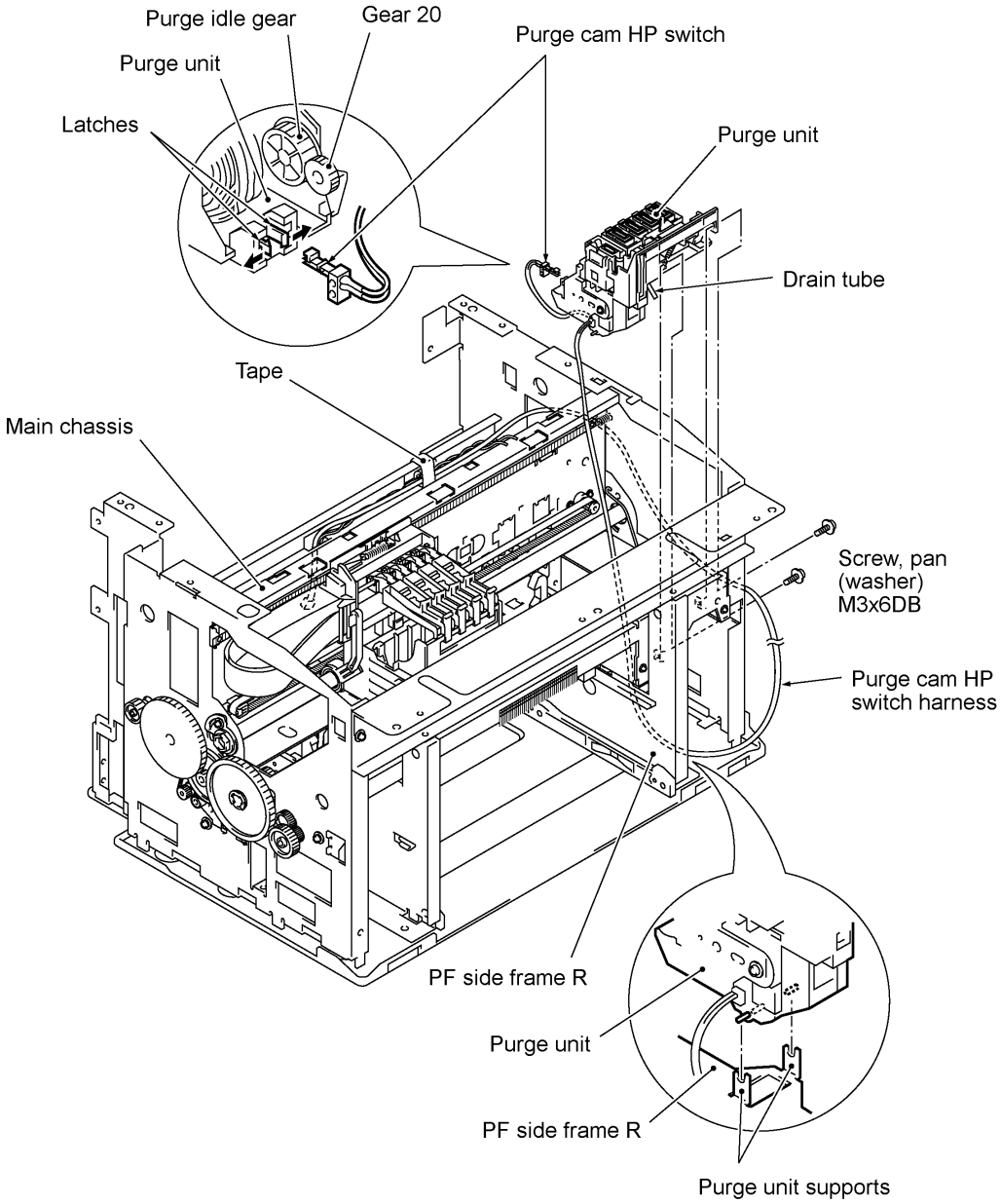


(2) Remove the two screws from the right side of the purge unit.

(3) Pull out the purge cam HP switch harness.

(4) Slightly lift up the front end of the purge unit and take it out of the PF side frame R and main chassis.

(5) Take off the purge cam HP switch from the purge unit by pulling the unit's latches outwards.



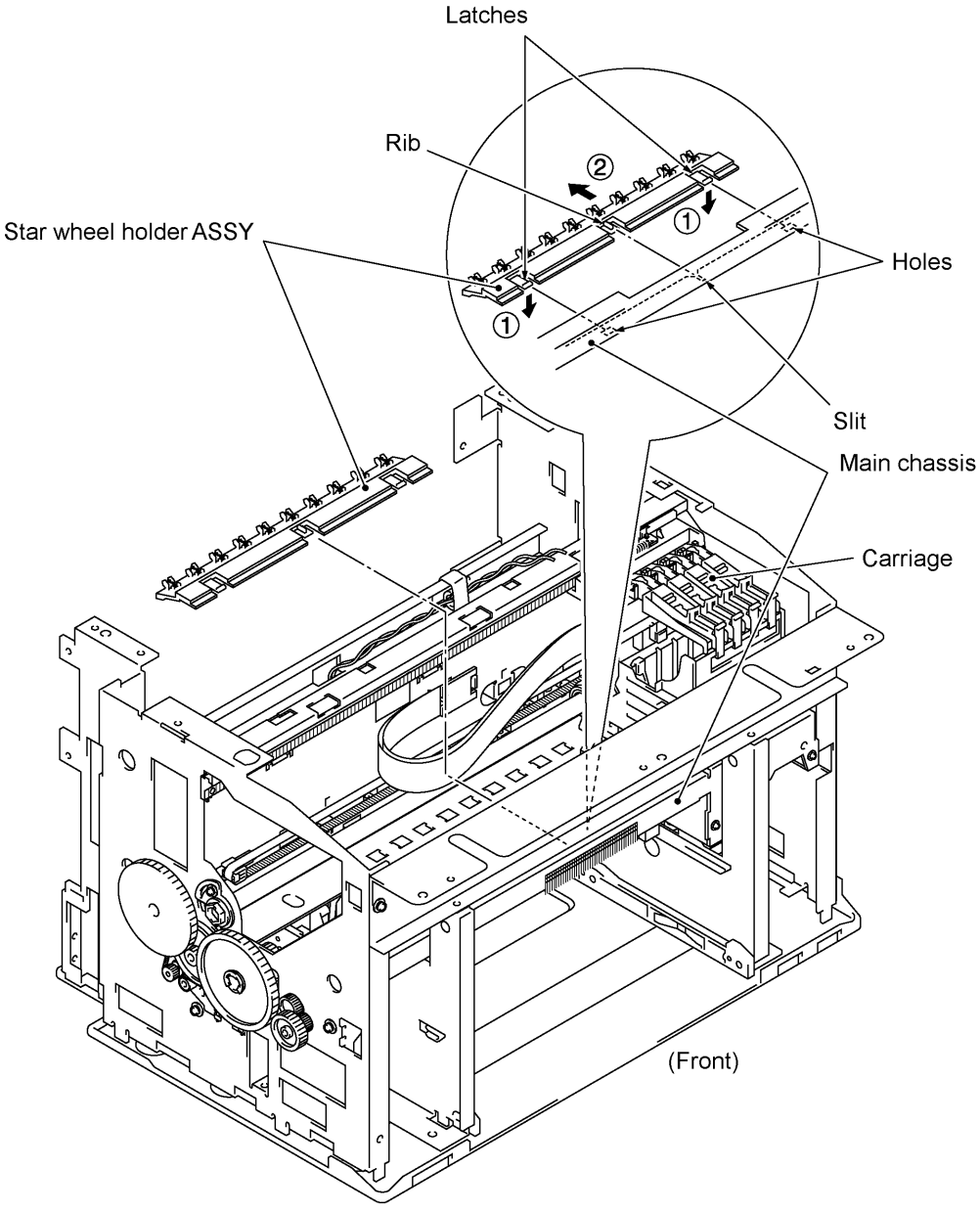
n Reassembling Notes

- Make sure that the bottom end of the purge lever is placed in the left (clockwise) position when viewed from the top. (Refer to page III-9.)
- First route the purge cam HP switch harness through the main chassis. Then put the purge unit back into place so that the gear 20 will be placed beneath the purge switching arm (shown on page III-9) set on the PF side frame R.
- Make sure that the purge unit is fitted in the purge unit supports provided on the PF side frame R as illustrated above.
- After installing the purge unit, move the carriage to the right and left ends by hand to check that it travels smoothly.

1.18 Star Wheel Holder ASSY

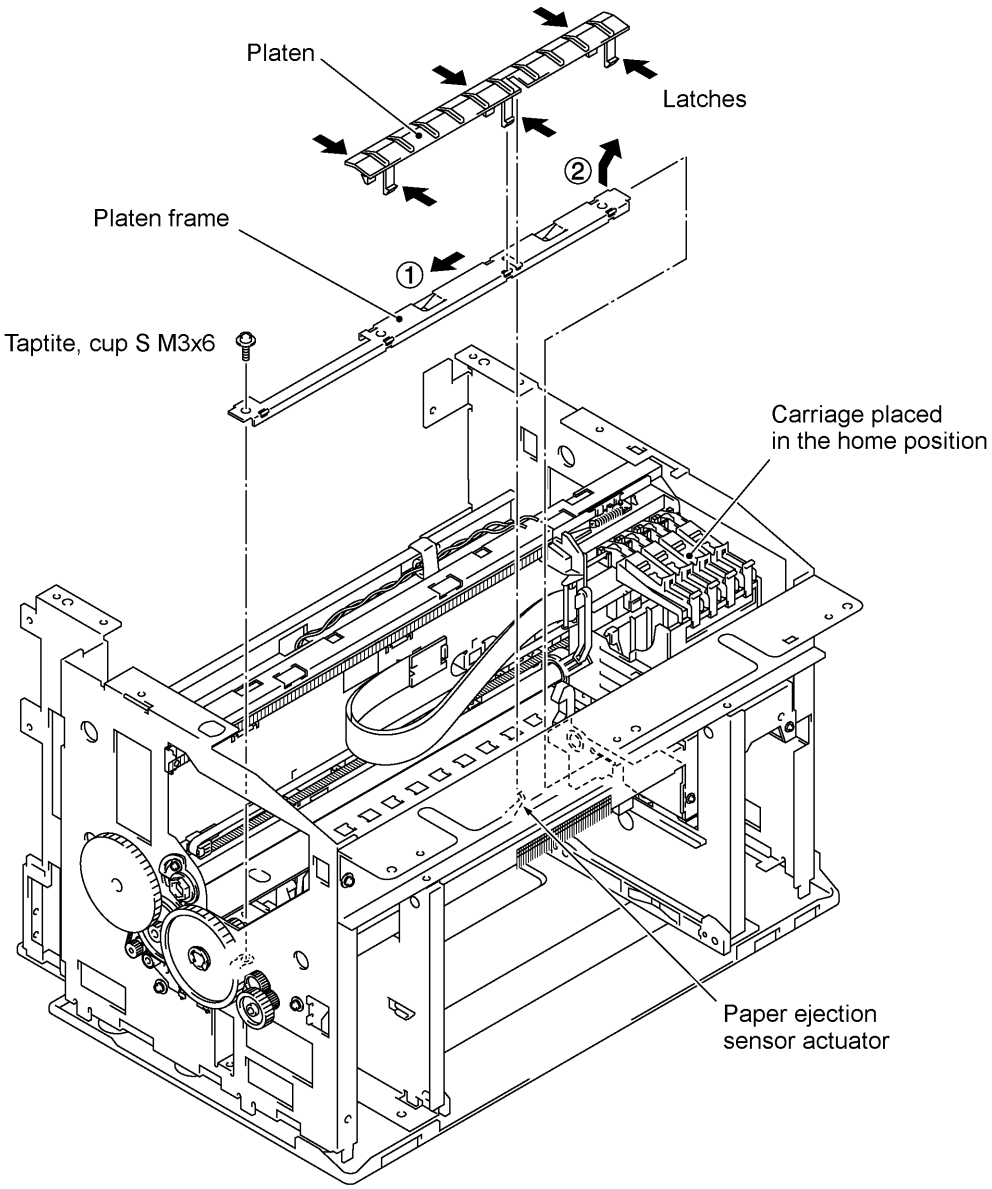
(1) Move the carriage to either end of its travel.

(2) Insert the tip of a flat screwdriver between each latch of the star wheel holder ASSY and the main chassis from the front and lightly twist it to unhook the latch while pulling the star wheel holder ASSY to the rear.



1.19 Platen and Its Frame

(1) Make sure that the carriage is placed in the home position.
(2) Remove the screw from the platen frame.
(3) Slightly move the platen frame to the left and take it out.
(4) Unhook the six latches of the platen from the platen frame.



1.20 Flushing Foams

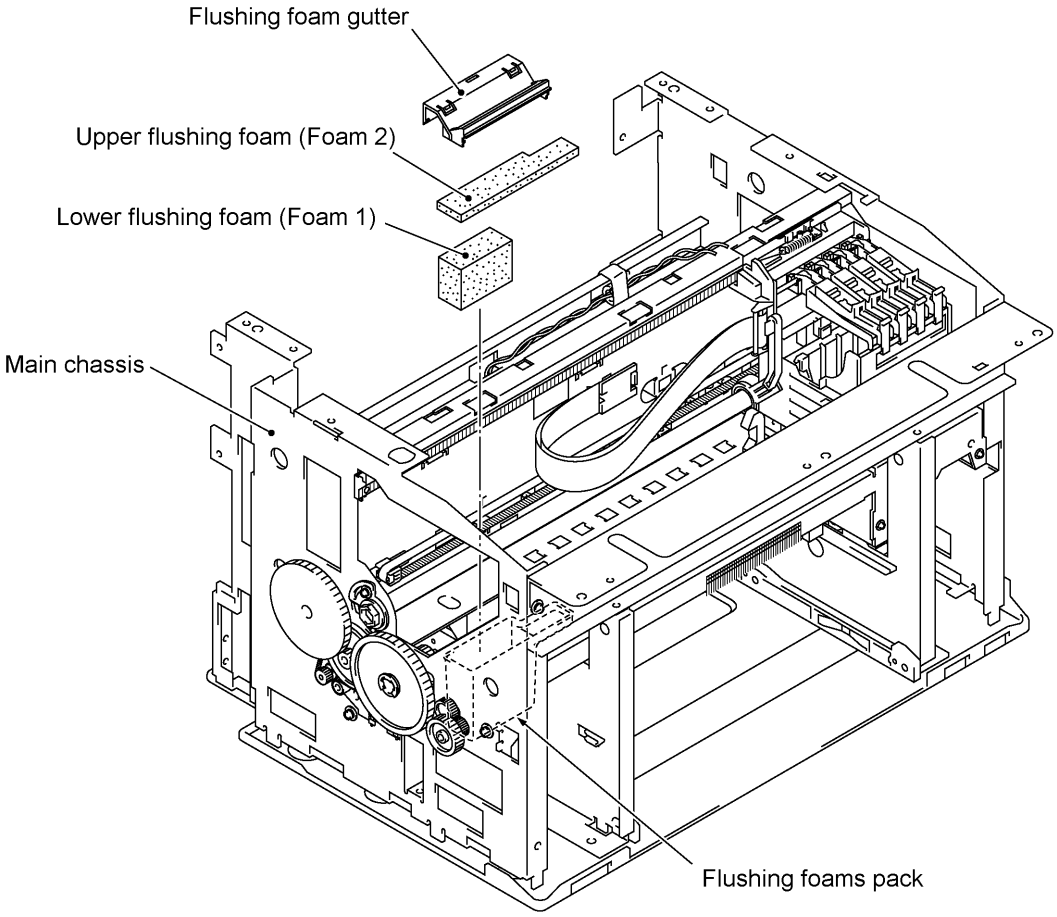
After the main PCB is replaced with any other one, you need to replace the flushing foams with new ones.

(1) Remove the flushing foam gutter.

(2) Pull out the upper and lower flushing foams from the flushing foams pack.

NOTE: Use vinyl gloves to prevent your hands from becoming dirty.

NOTE: For the removal of the flushing foams pack, refer to Subsection 1.22.



1.21 Main Chassis

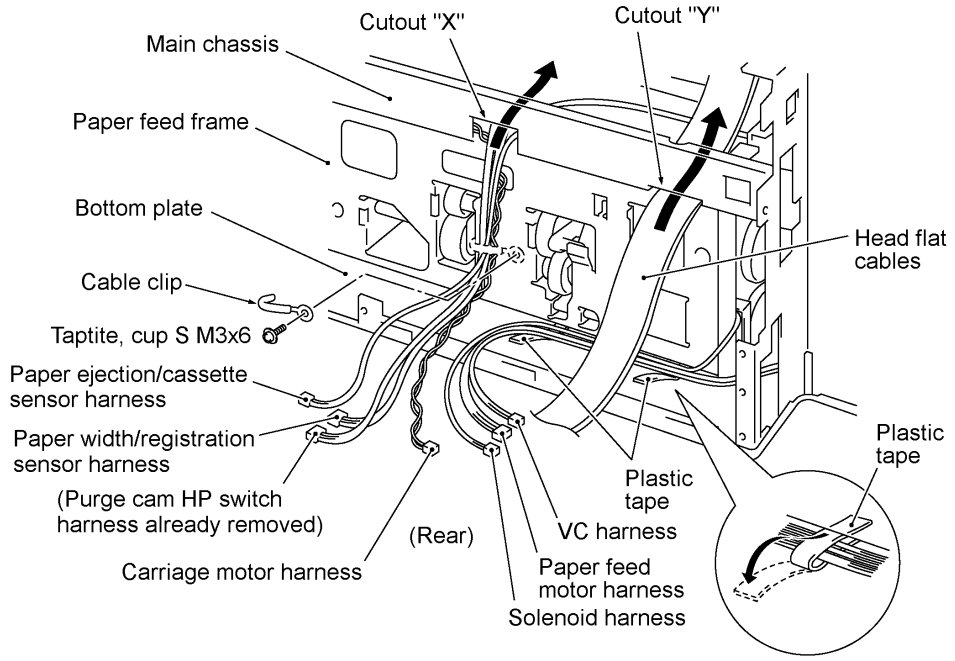
> **Caution** Once removed, the components given in this subsection require the purge unit adjuster for reassembly. Refer to Section 3, “ADJUSTMENT” in this chapter.

(1) Take off the cable clip by removing the screw.

(2) Pull up the three harnesses (paper ejection/cassette sensor harness, paper width/registration sensor harness, and carriage motor harness) released in step (1) through cutout "X" provided in the main chassis.

(3) Pull up the head flat cables through cutout "Y" provided in the main chassis.

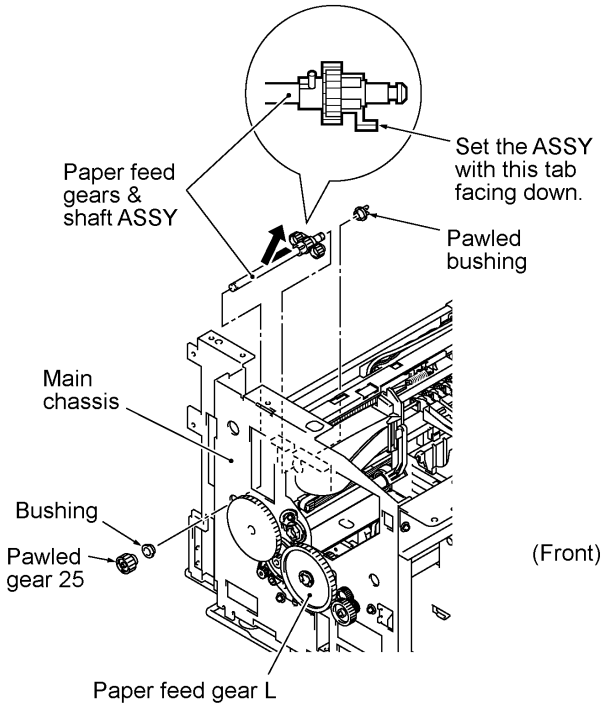
(4) Pull out two pieces of plastic tape as shown below to release the three harnesses (VC harness, paper feed motor harness, and solenoid harness).



(5) Remove the pawled bushing from the right end of the paper feed gears & shaft ASSY by pulling its pawls outwards.

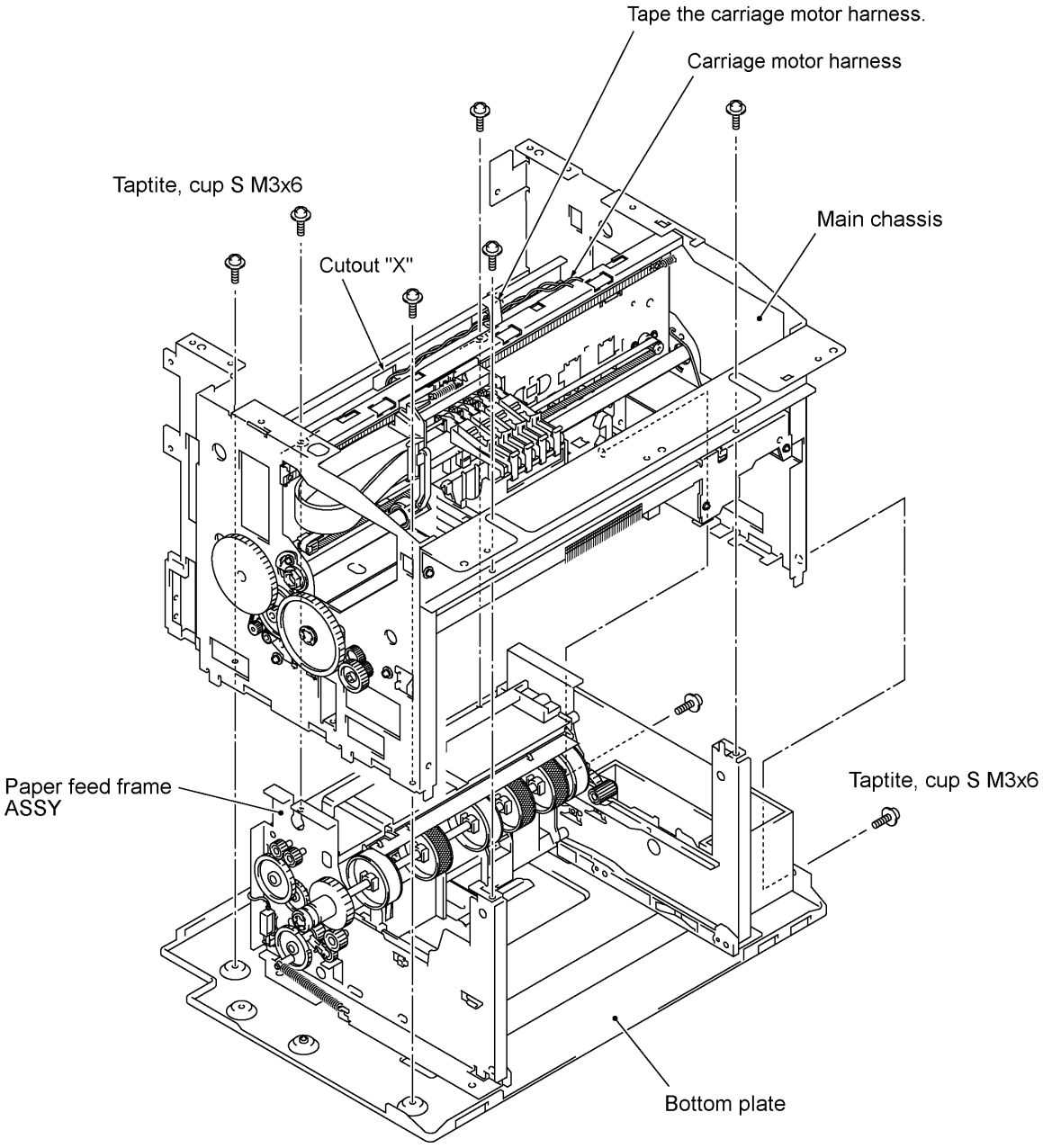
(6) Remove the pawled gear 25 by pulling its pawl outwards and pull out the bushing.

(7) Remove the paper feed gears & shaft ASSY.



(8) Remove eight screws.

(9) Lift up the main chassis.



n Reassembling Notes

- When reinstalling the main chassis onto the paper feed frame, be sure to:
  - route the carriage motor harness along the top of the main chassis and through cutout "X" provided in the main chassis, and then tape it near the carriage motor as shown on pages IV-49 and IV-64,
  - route the paper width/registration sensor harness and paper ejection/cassette sensor harness through cable guide "Y" provided on the upper paper chute (see page IV-70) and cutout "X" (see page IV-49), and
  - route the paper feed motor harness and VC harness through the cable clamp attached to the NCU bracket (see page IV-36).

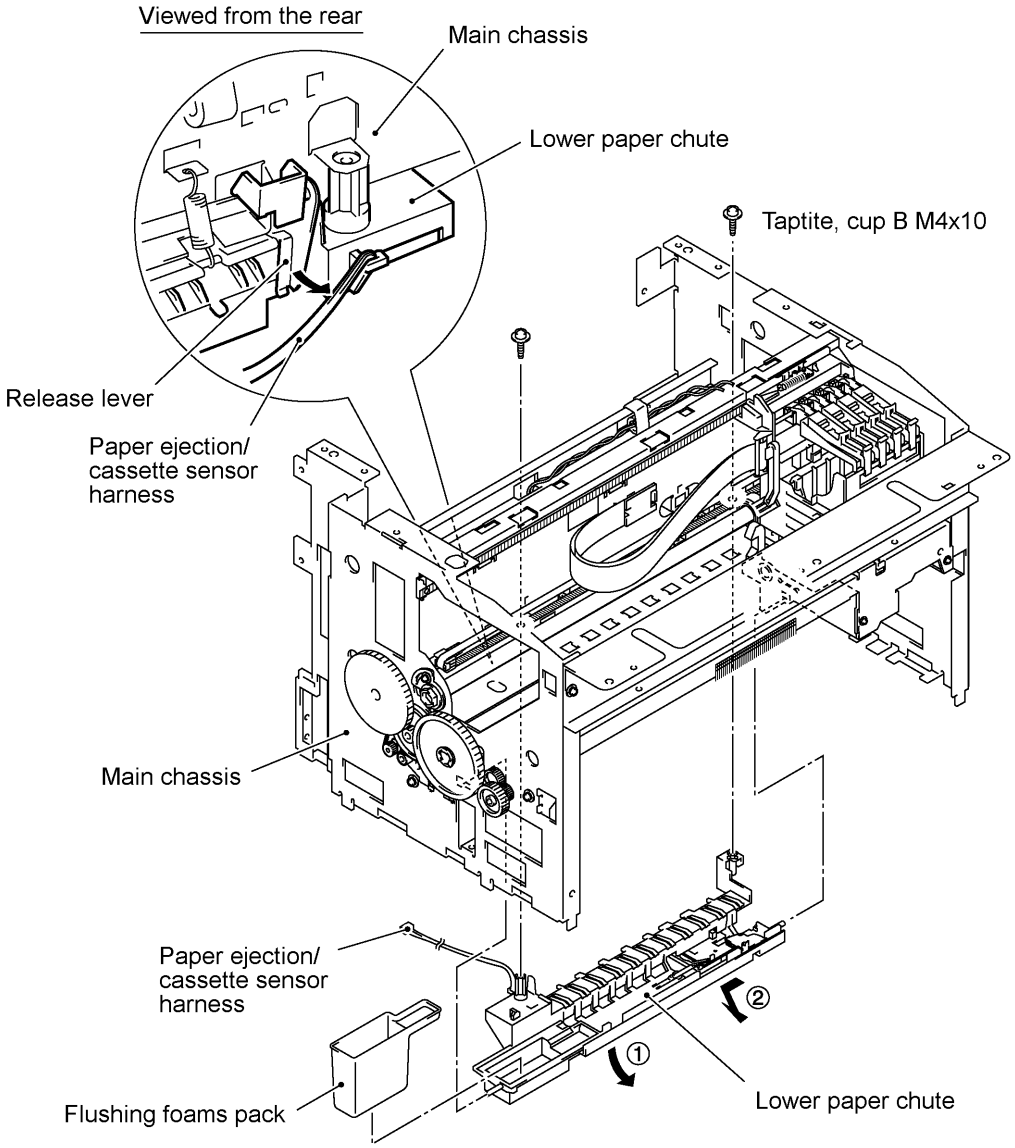
1.22 Lower Paper Chute, Flushing Foams Pack, Paper Ejection/Cassette Sensor PCB, and Sensor Actuators

Caution Once removed, the components given in this subsection require the purge unit adjuster for reassembly. Refer to Section 3, "ADJUSTMENT" in this chapter.

(1) Remove two screws.

(2) Pull the release lever to the rear and take out the lower paper chute in the direction of arrows • and ❟.

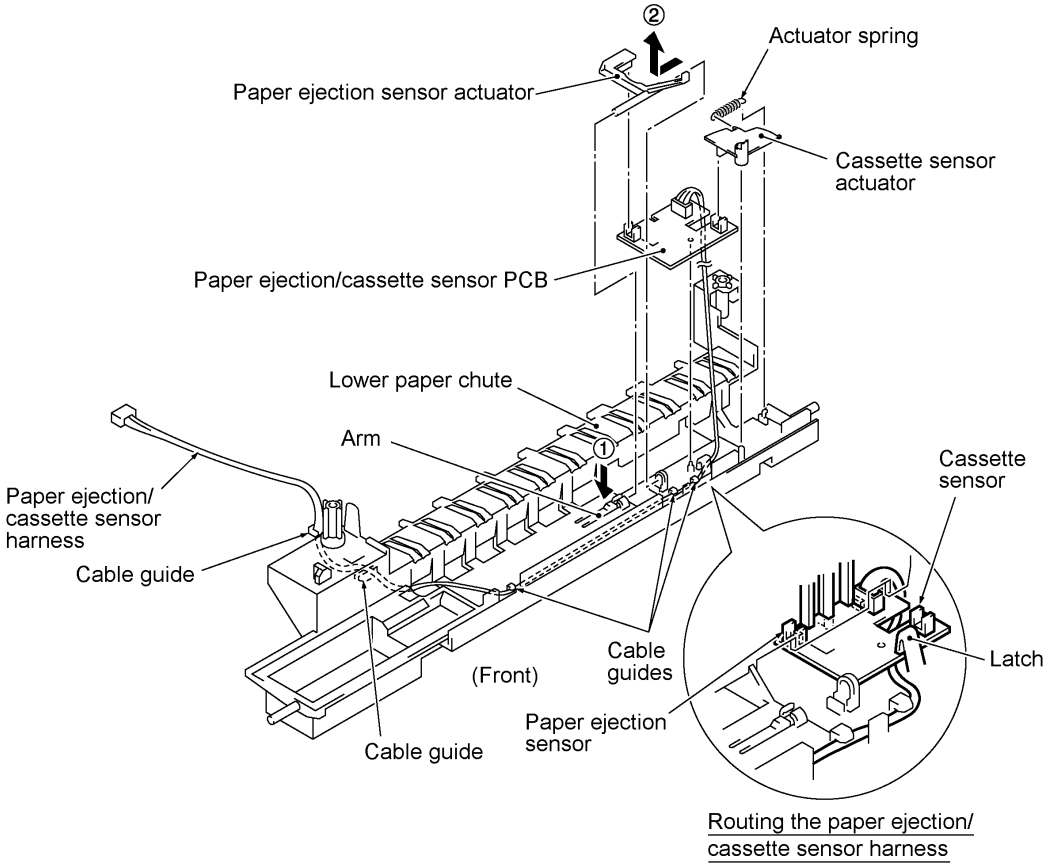
(3) Remove the flushing foams pack.



(4) As shown with arrows • and ❟, press the arm and take out the paper ejection sensor actuator.

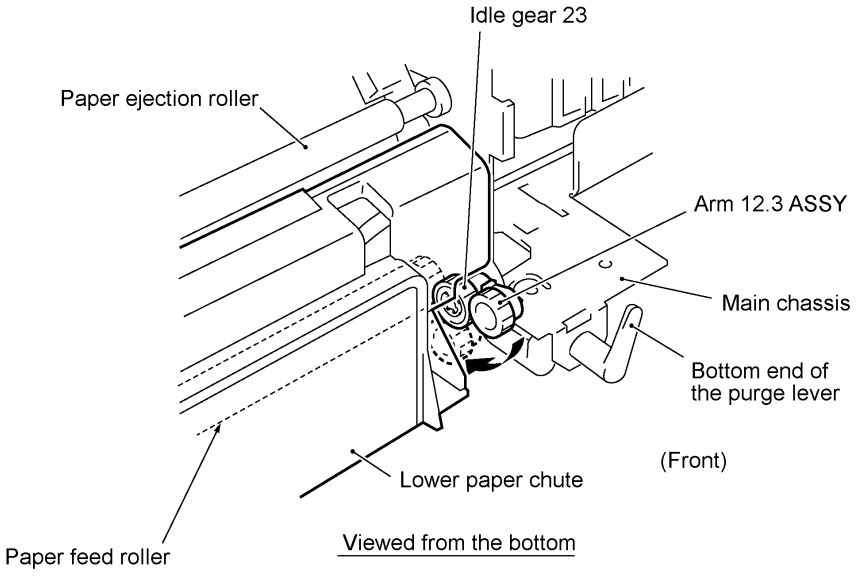
(5) Unhook the actuator spring and remove the cassette sensor actuator.

(6) Pull the latch and take out the paper ejection/cassette sensor PCB.



n Reassembling Notes

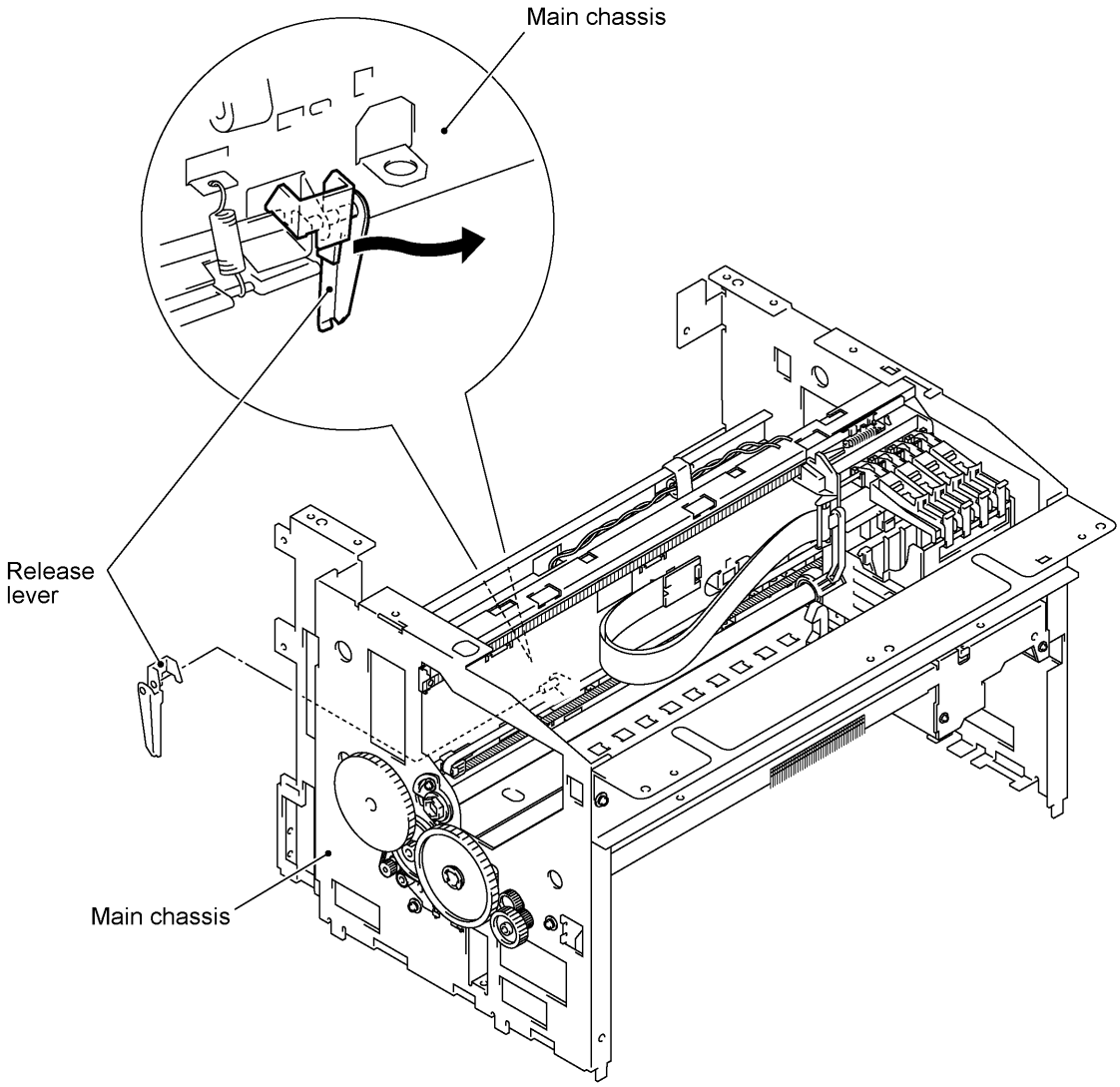
- When setting the lower paper chute back into place, fully turn the arm 12.3 ASSY on the main chassis clockwise (when viewed from the left) as shown below and pull the release lever to the left and outwards (when viewed from the rear as shown on page IV-51).



1.23 Paper Pressure Holders

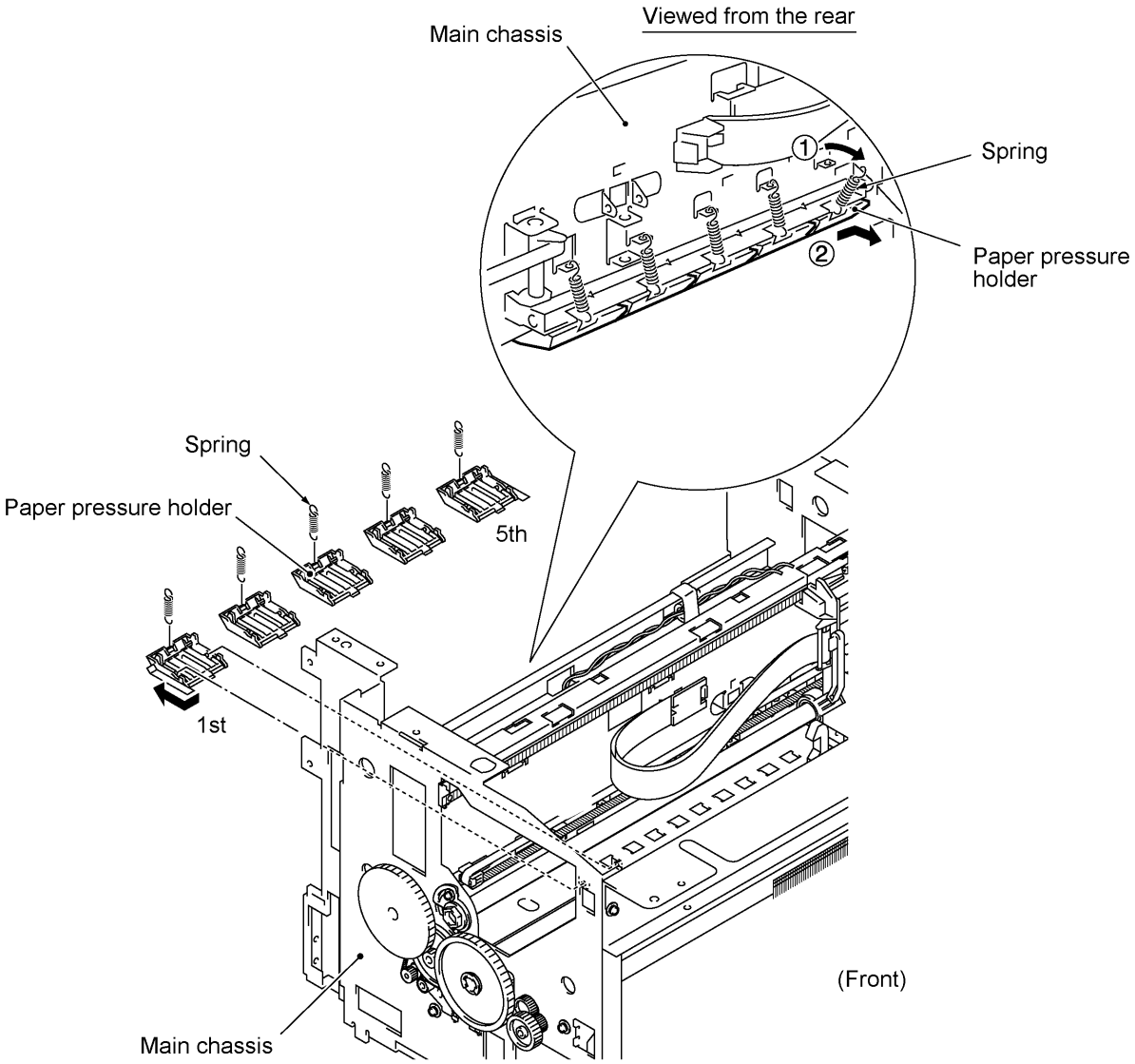
> **Caution** Once removed, the components given in this subsection require the purge unit adjuster for reassembly. Refer to Section 3, "ADJUSTMENT" in this chapter.

(1) Remove the release lever from the main chassis.



(2) Remove the paper pressure holders and springs according to the instructions below.

- Start the removal work from the right-hand side holder and work your way over to the left-hand side, when viewed from the rear.
- Unhook the top end of the spring from the main frame (in the direction of arrow •), shift the paper pressure holder to the right and pull it out to the rear (arrow ,).



n Reassembling Notes

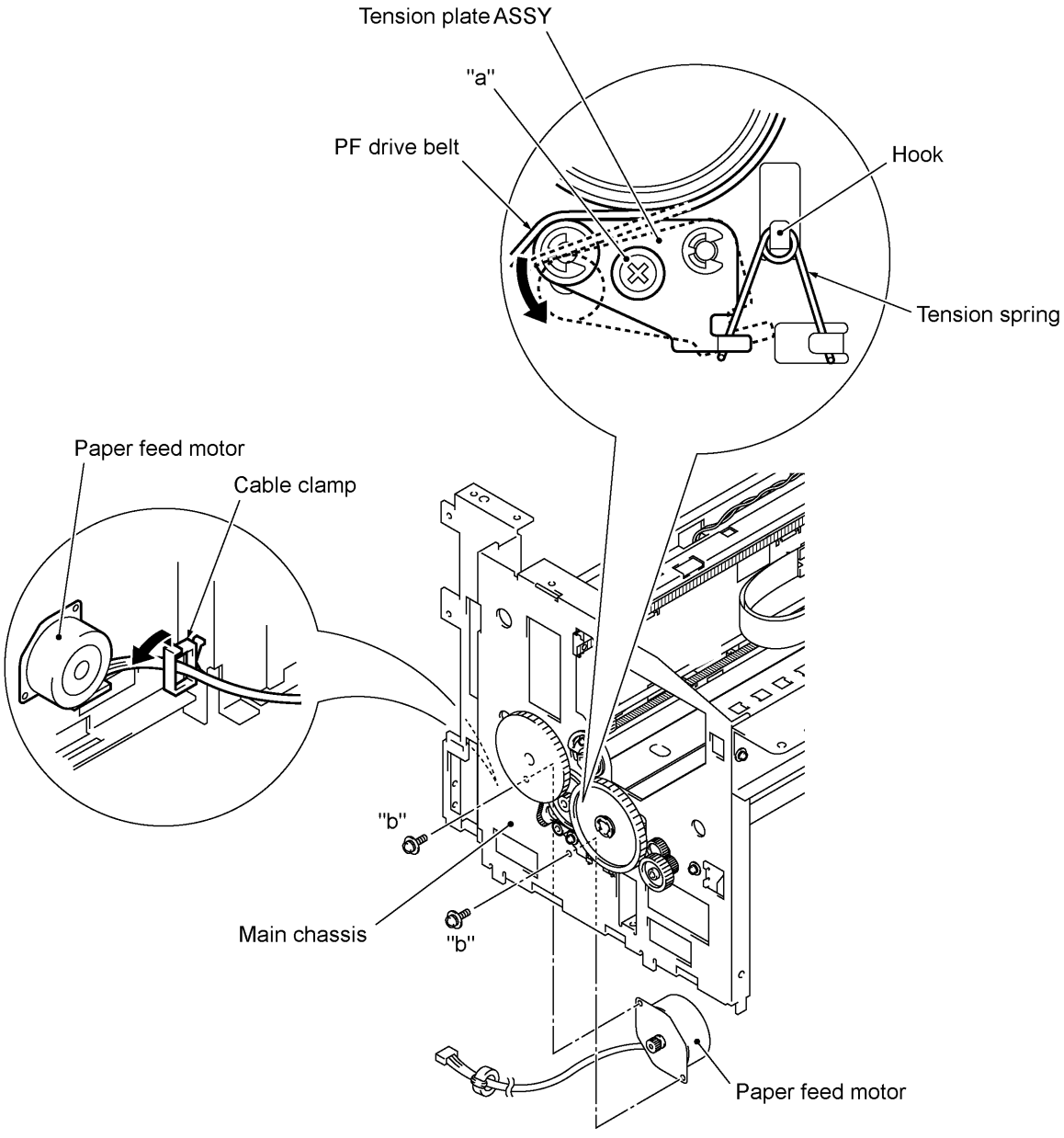
- The paper pressure holders to be placed in the 1st and 5th positions are different in shape with each other and different from other three.
- After installing the paper pressure holders, their springs, and the release lever, pull up the release lever to check that it works normally.

1.24 Paper Feed Motor, Paper Feed Gear L, PF Drive Belt, and Tension Plate ASSY

(1) Loosen screw "a" on the tension plate ASSY.

(2) Remove two screws "b" that secures the paper feed motor.

(3) Turn the tension plate ASSY counterclockwise and pull the paper feed motor inwards.



"a" and "b": Screw, pan (washer) M3x8DB

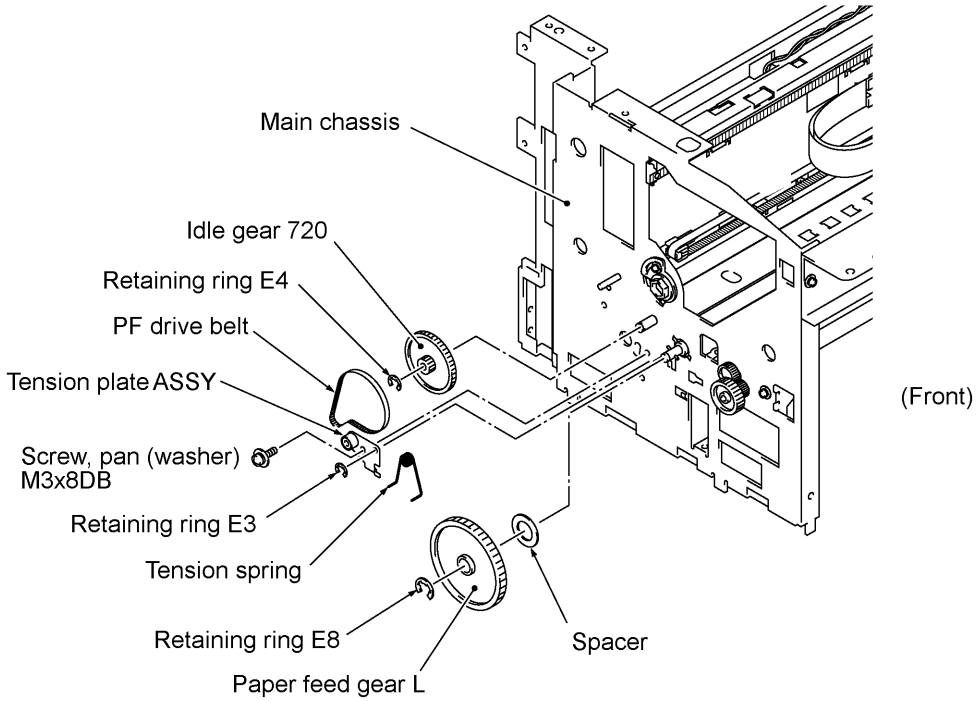
(4) Remove the retaining ring E8, paper feed gear L, and spacer from the left side of the main chassis.

(5) Remove the tension spring.

(6) Remove the PF drive belt from the idle gear 720.

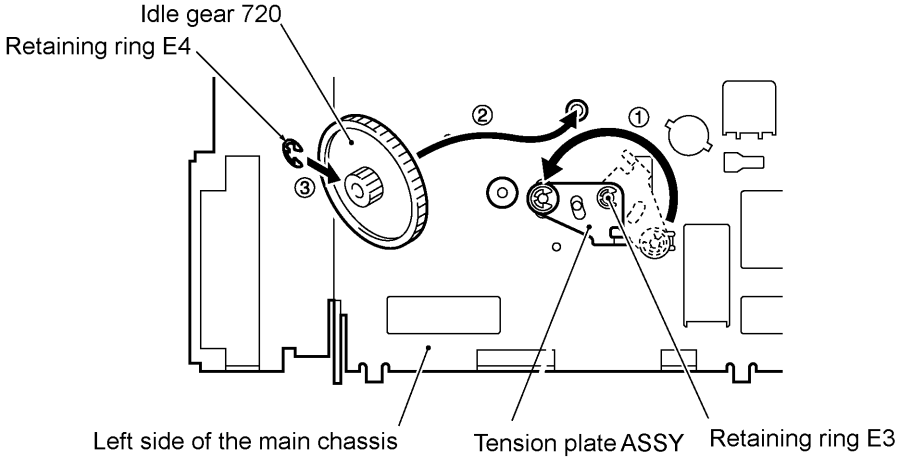
(7) Remove the retaining ring E4 and idle gear 720.

(8) Remove screw "a," retaining ring E3, and tension plate ASSY.

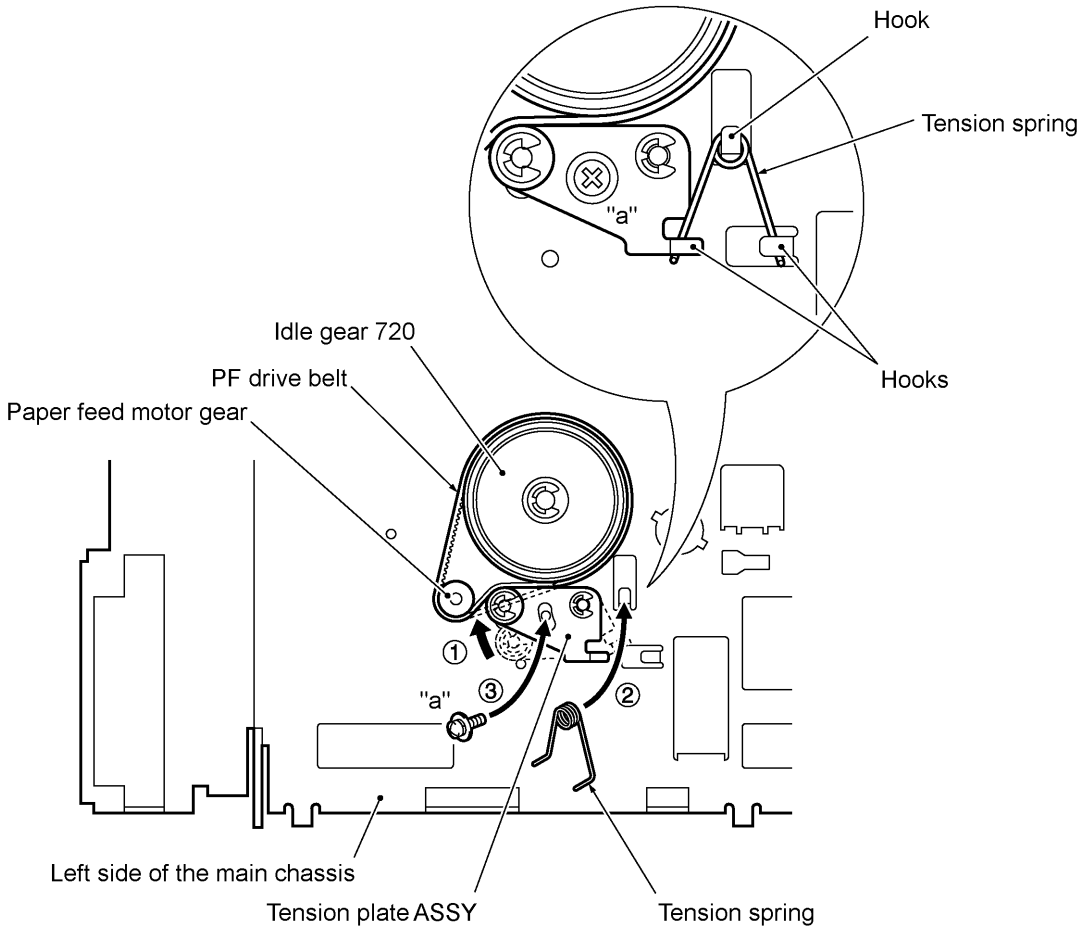


n Reassembling Notes

- When reinstalling the tension plate ASSY, idle gear 720, and PF drive belt, follow the steps below.
  1) Secure the tension plate ASSY to the left side of the main chassis with retaining ring E3 and turn it counterclockwise (in the direction of arrow •).
  2) Secure the idle gear 720 with the retaining ring E4 (arrows , and ƒ).



3) Secure the paper feed motor with two screws "b" (refer to the illustration given on page IV-55).
4) Put the PF drive belt around the paper feed motor gear and the idle gear 720.
5) Turn the tension plate ASSY clockwise (in the direction of arrow •) to apply tension to the PF drive belt and set the tension spring onto the three hooks (arrow ❟).
6) Secure the tension plate ASSY to the main frame with screw "a" (arrow ƒ).

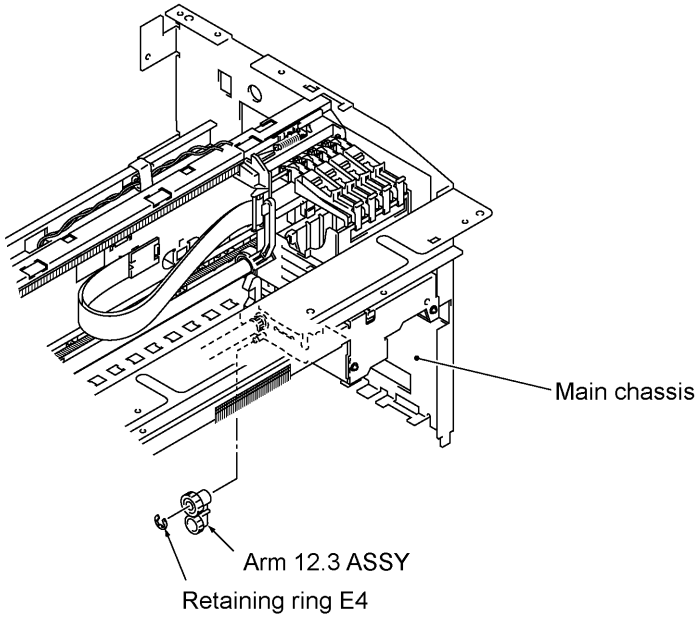


1.25 Arm 12.3 ASSY and Paper Feed Roller

> **Caution** Once removed, the components given in this subsection require the purge unit adjuster for reassembly. Refer to Section 3, "ADJUSTMENT" in this chapter.

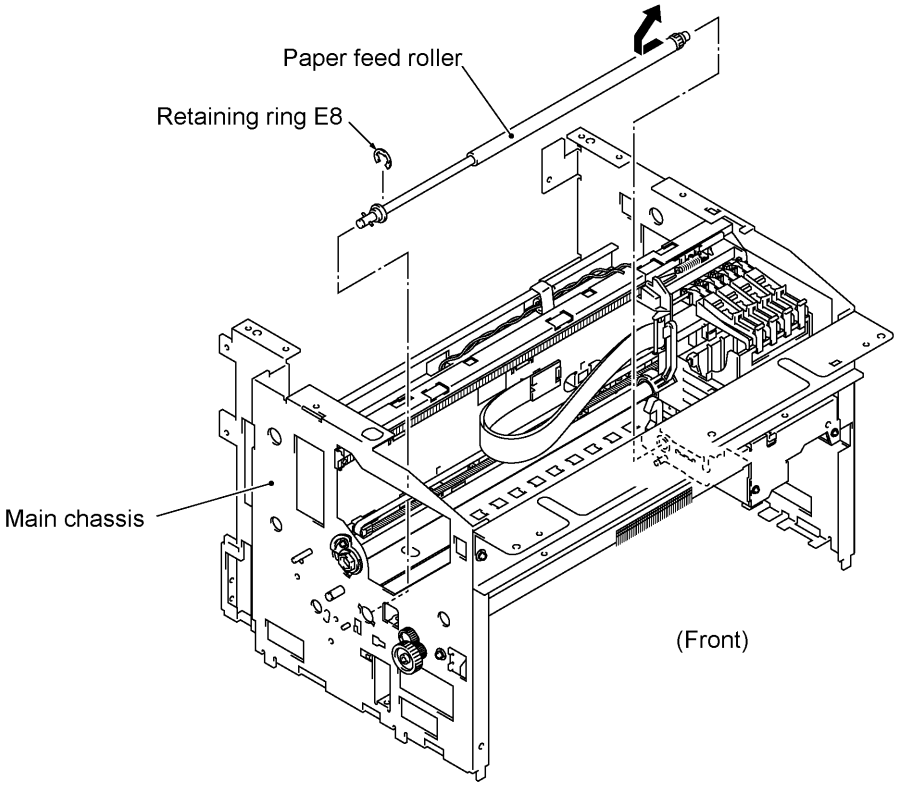
(1) Make sure that the carriage is placed in the home position.

(2) Remove the retaining ring E4 from the arm 12.3 ASSY and take it off from the main chassis.



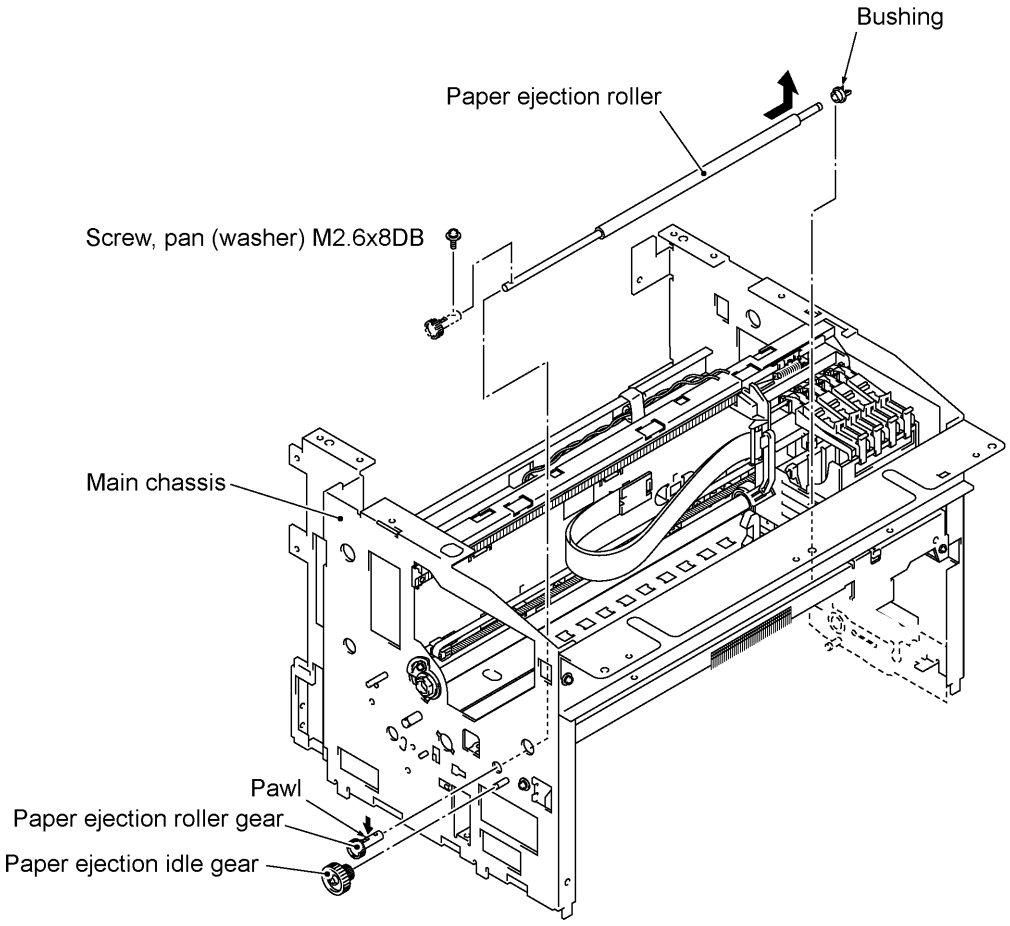
(3) Remove the retaining ring E8 from the left end of the paper feed roller shaft inside the main chassis.

(4) Take out the paper feed roller in the direction of the arrow.



1.26 Paper Ejection Roller

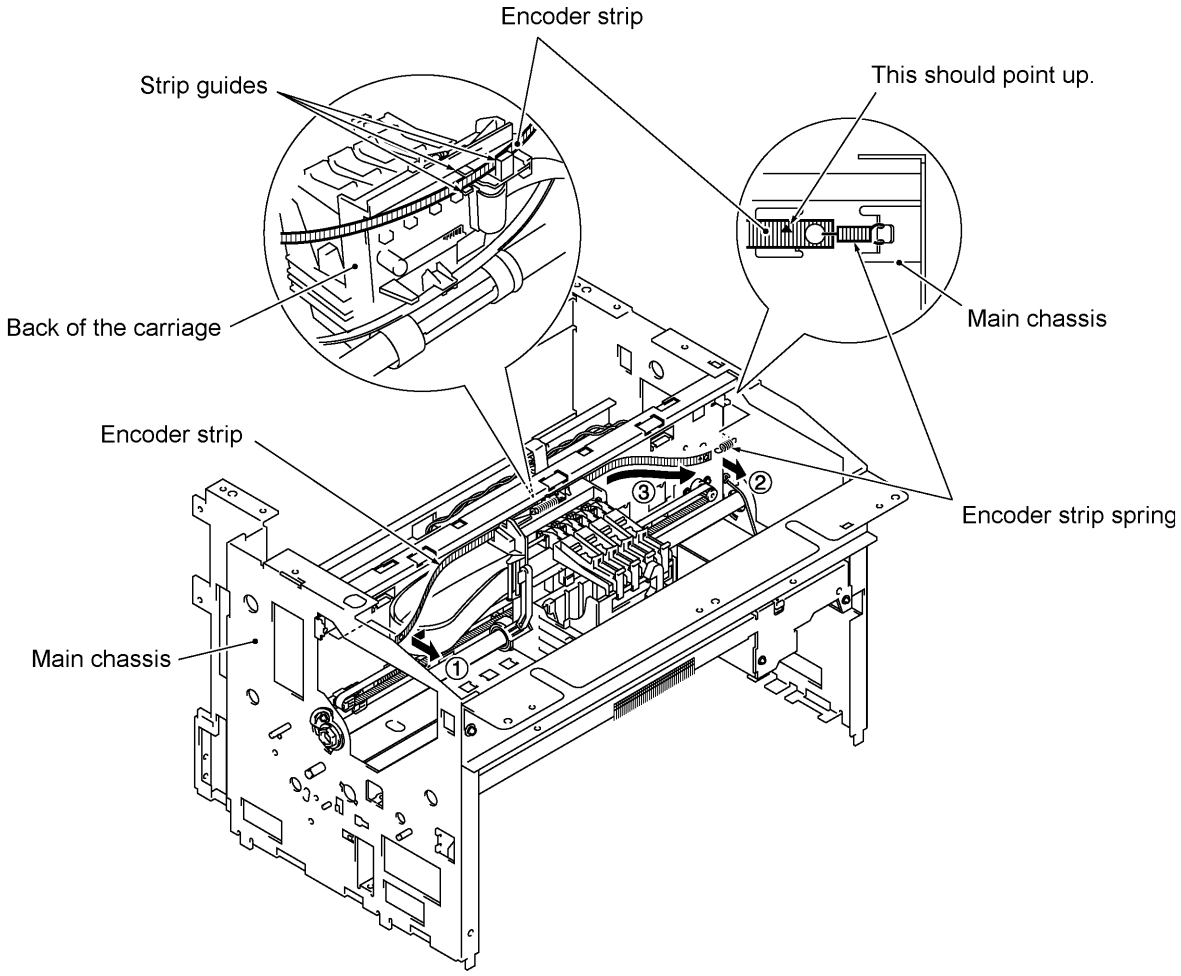
(1) Make sure that the carriage is placed in the home position.
(2) Remove the paper ejection idle gear by pulling its pawl outwards.
(3) Remove the screw from the paper ejection roller gear.
(4) Take out the paper ejection roller with the bushing in the direction of the arrow.
(5) Push the pawl of the paper ejection roller gear and remove it to the left.



1.27 Encoder Strip

(1) Take off the encoder strip by removing its spring.

NOTE: Take care not to scratch or damage the encoder strip.



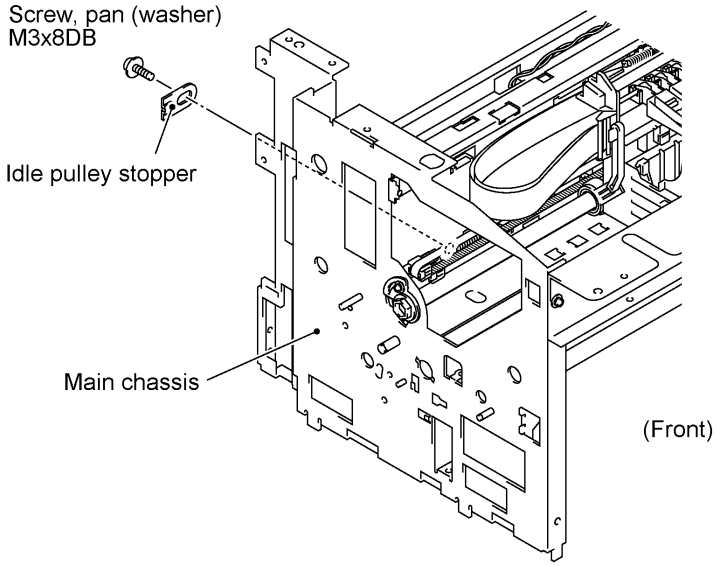
n Reassembling Notes

- Pass the encoder strip through the back of the carriage so that the strip will route as illustrated above and the ▲-marked end comes to the right. Then hook the ▲-marked end on the spring of the main chassis so that the ▲ mark points up.

1.28 Carriage Rail, Carriage ASSY, and Carriage Motor

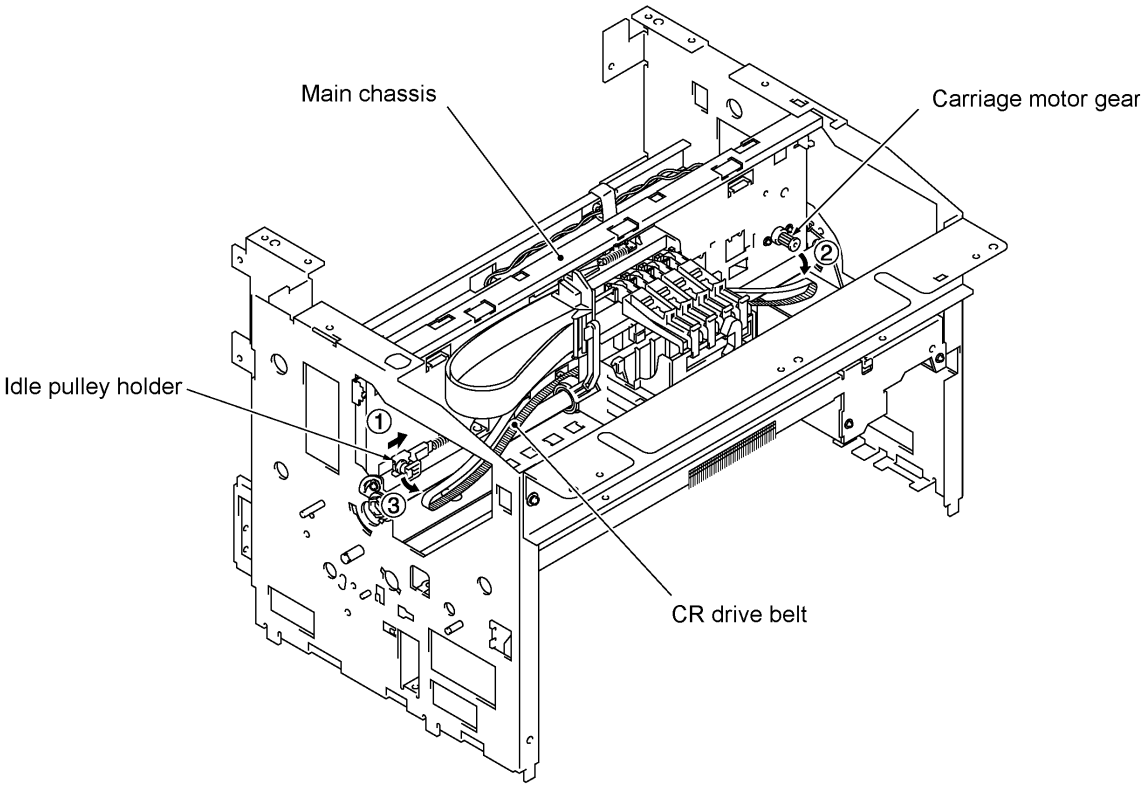
> **Caution** Once the components given in this subsection are removed, it is recommended that the gap adjustment jig be used for accurate head-platen gap. Refer to Section 3, "ADJUSTMENT" in this chapter.

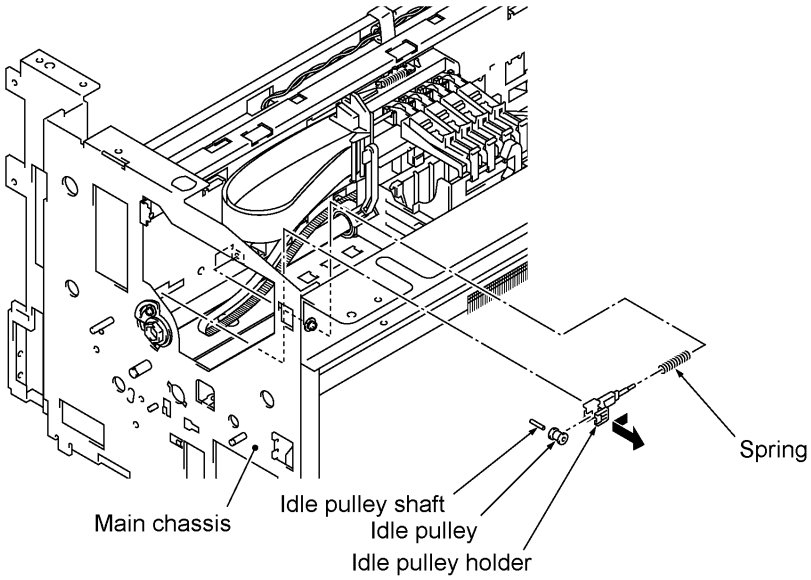
(1) Take off the idle pulley stopper by removing the screw.



(2) While pushing the idle pulley holder to the right (in the direction of arrow •), remove the CR drive belt from the carriage motor gear (arrow ❟). Then remove the CR drive belt from the idle pulley holder (arrow ƒ) and take off the idle pulley holder from the main chassis.

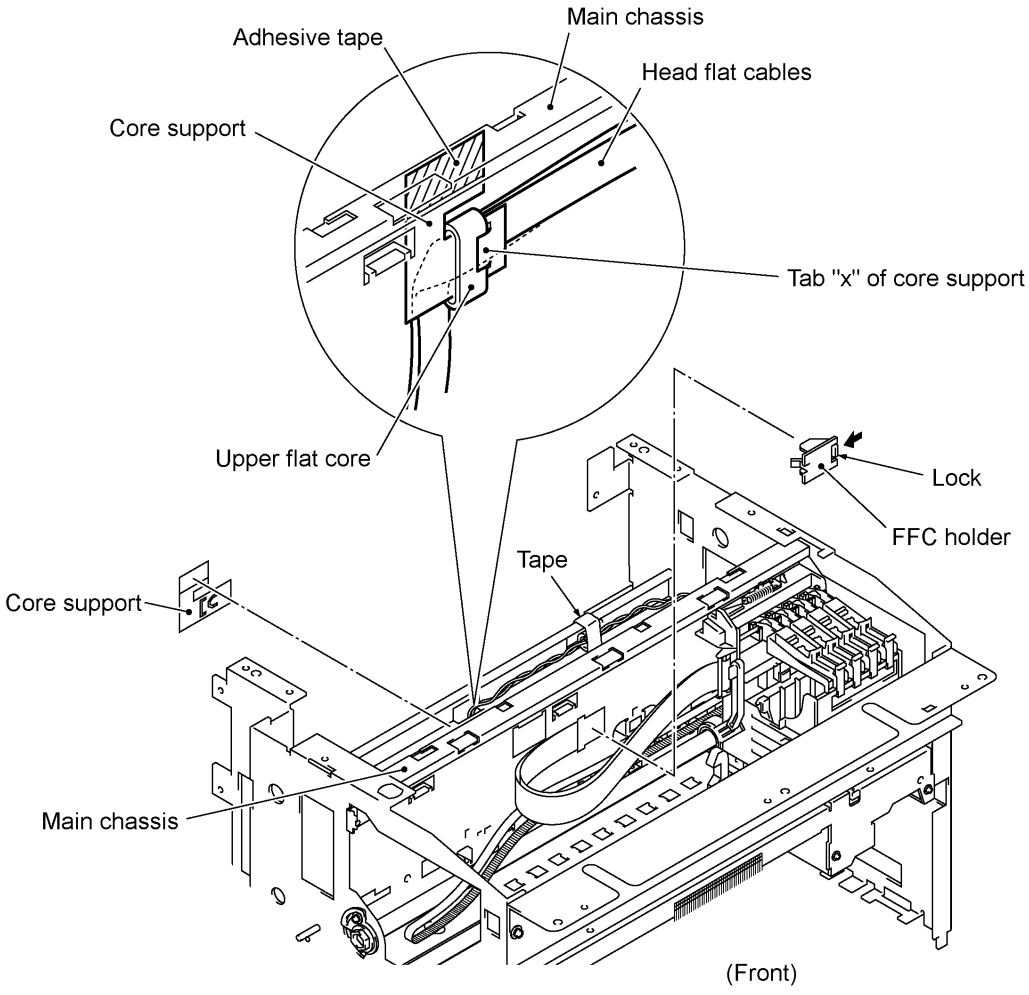
On the idle pulley holder are the idle pulley, idle pulley shaft, and spring as shown on the next page.





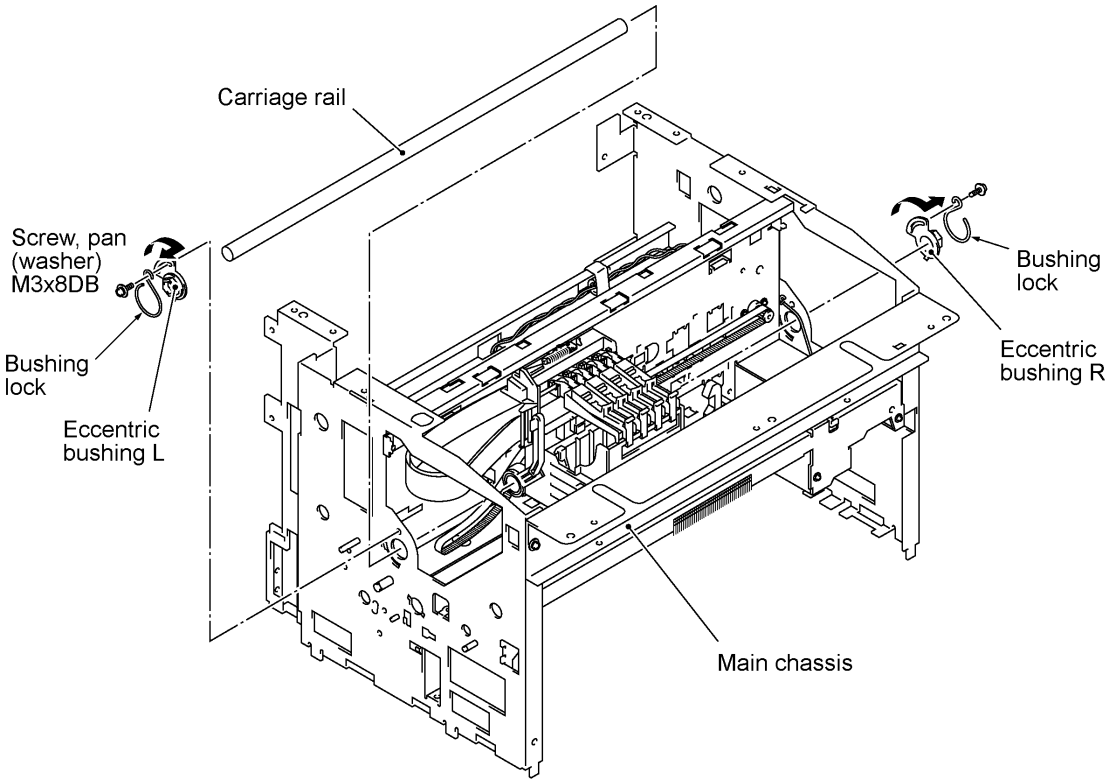
(3) Unhook the lock of the FFC holder and remove the holder by pushing it from the rear. This releases the head flat cables.

(4) Take off the upper flat core and the head flat cables from the core support. Then remove the core support.



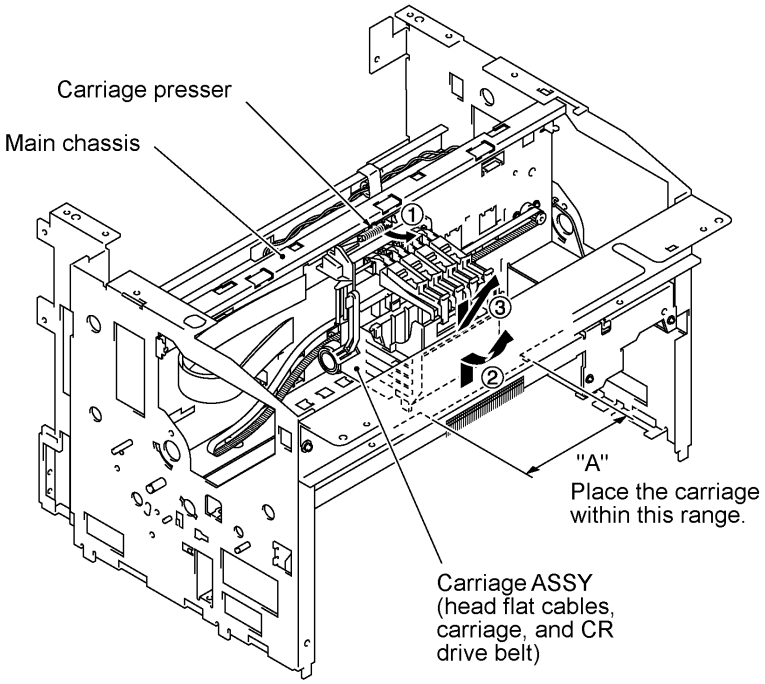
(5) Make sure that the ink cartridges and print head have been removed.

(6) Remove the screw from the eccentric bushing L and take off the bushing lock. Then turn the bushing clockwise (when viewed from the left) until its pawl becomes aligned with the cutout provided in the main frame, and then pull out the bushing L and carriage rail. In the same way, remove the eccentric bushing R.

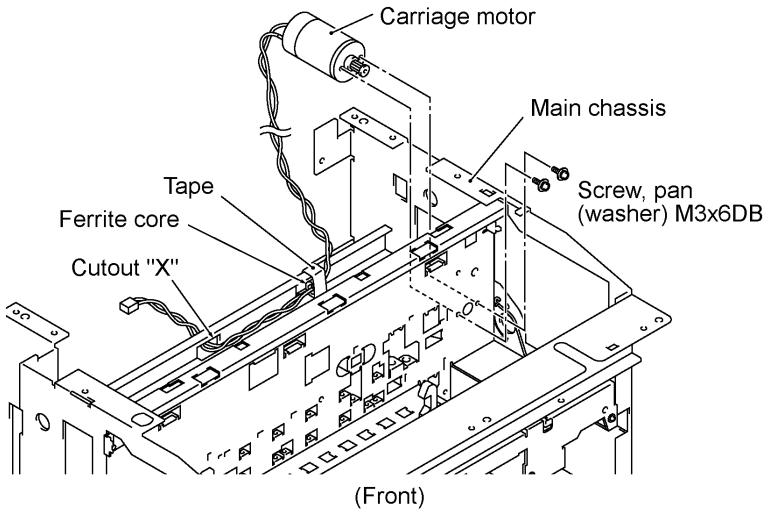


(7) Bring the carriage to the center of the travel ("A" range shown below).

(8) First pull the carriage presser to the front, lift up the carriage to take off the lower edge from the main chassis, and take out the carriage ASSY (the head flat cables, carriage, and CR drive belt).

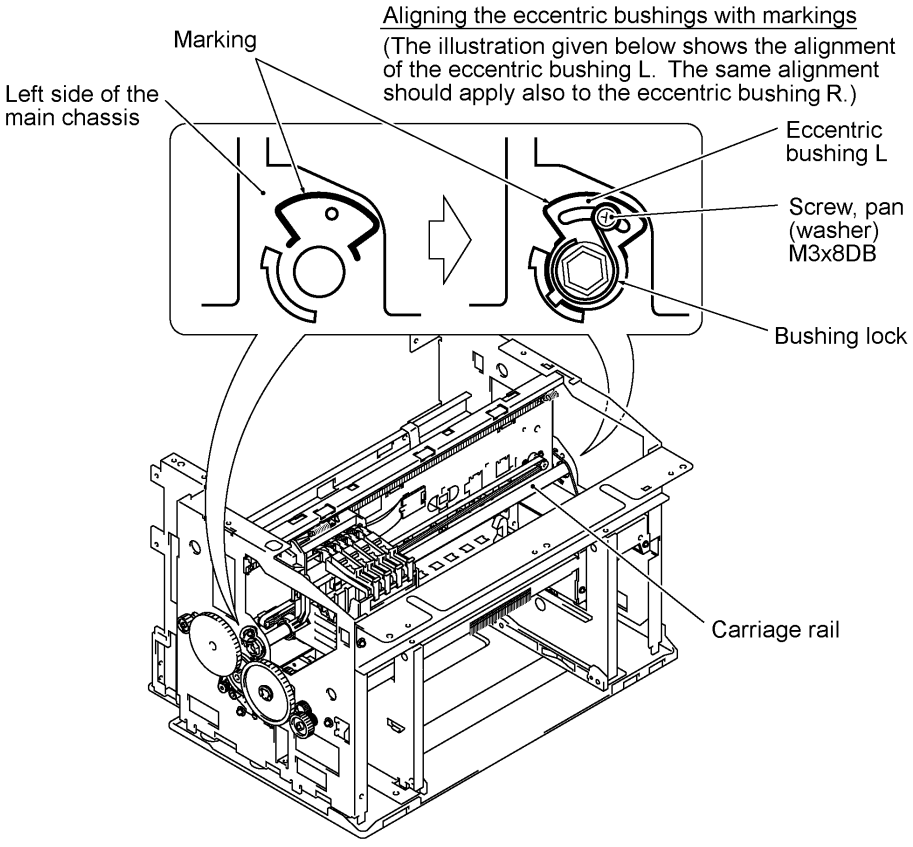


(9) Remove the two screws and tape, then take off the carriage motor.



n Reassembling Notes

- When reinstalling the carriage rail, fit the eccentric bushings R and L onto the ends of the carriage rail, set the bushing locks, and temporarily secure them with screws. Then align those bushings with markings made on the main chassis and tighten those screws firmly. This alignment is required for keeping the head-platen gap properly. (It is recommended that the gap adjustment jig be used for accurate head-platen gap. Refer to Section 3.2.)


Aligning the eccentric bushings with markings
(The illustration given below shows the alignment of the eccentric bushing L. The same alignment should apply also to the eccentric bushing R.)
Marking
Left side of the main chassis
Eccentric bushing L
Screw, pan (washer) M3x8DB
Bushing lock
Carriage rail

- If you replace the carriage ASSY, be sure to set the sensing reference levels of the black ink empty sensor (function code: 57), (Refer to Chapter V, Subsection 3.10.)
- When routing the head flat cables, hook the upper flat core on the core support attached to the back of the main chassis and make tab "x" of the core support catch the upper flat core as shown on page IV-62. Next, tape those cables to the main chassis.

1.29 Ink Absorbers

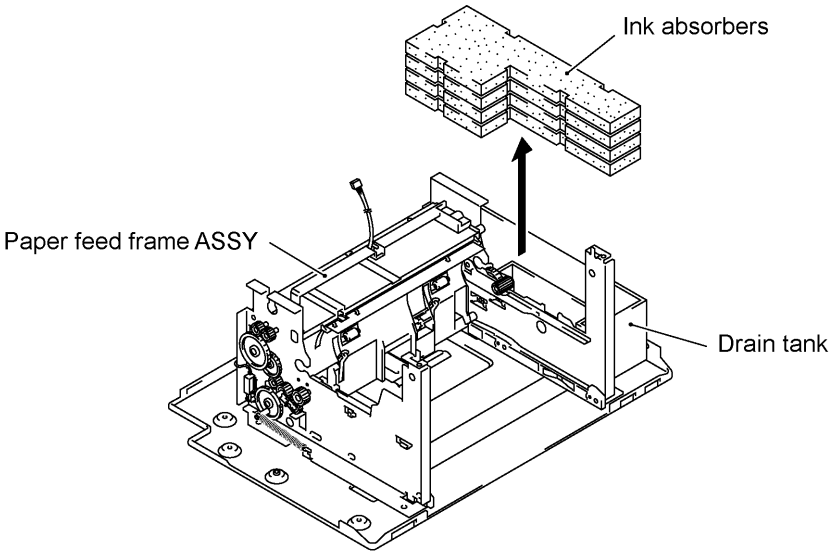
> **Caution** Once removed, the components given in this subsection require the purge unit adjuster for reassembly. Refer to Section 3, "ADJUSTMENT" in this chapter.

After the main PCB is replaced with any other one, you need to replace the ink absorbers with new ones.

(1) Pull out the ink absorbers from the drain tank.

NOTE: Use vinyl gloves to prevent your hands from becoming dirty.

(2) If the main chassis or the surrounding parts are stained with ink, wipe them with a waste cloth.



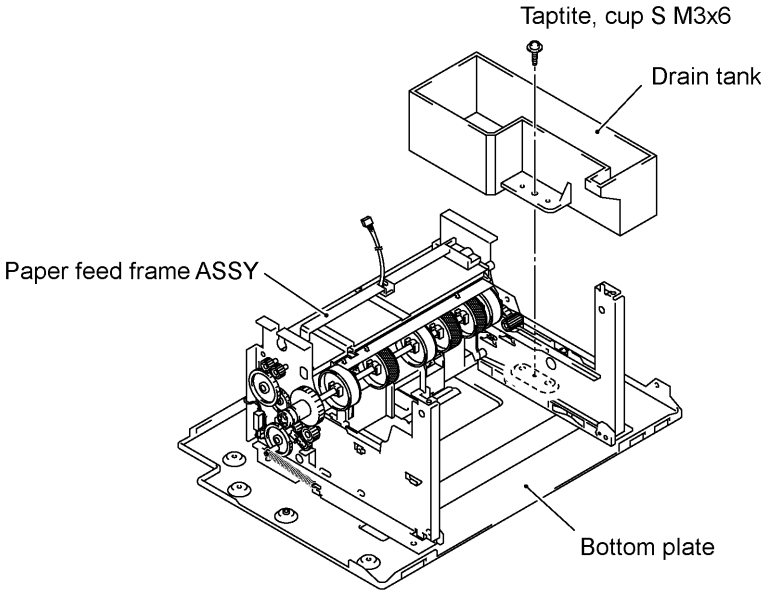
n Reassembling Notes

- When setting ink absorbers into the drain tank, use a screwdriver and the like.

1.30 Drain Tank

> **Caution** Once removed, the components given in this subsection require the purge unit adjuster for reassembly. Refer to Section 3, "ADJUSTMENT" in this chapter.

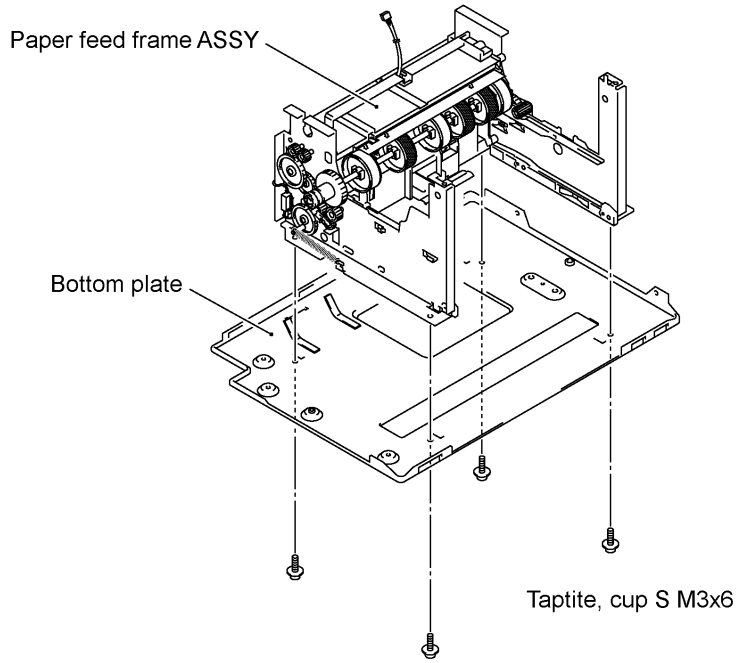
(1) Remove the screw and lift up the drain tank from the bottom plate.



1.31 Bottom Plate

> **Caution** Once removed, the components given in this subsection require the purge unit adjuster for reassembly. Refer to Section 3, "ADJUSTMENT" in this chapter.

(1) Remove four screws and lift up the paper feed frame ASSY.



1.32 Paper Pick-up Roller ASSY, Separation Pad, and Solenoid

> **Caution** Once removed, the components given in this subsection require the purge unit adjuster for reassembly. Refer to Section 3, "ADJUSTMENT" in this chapter.

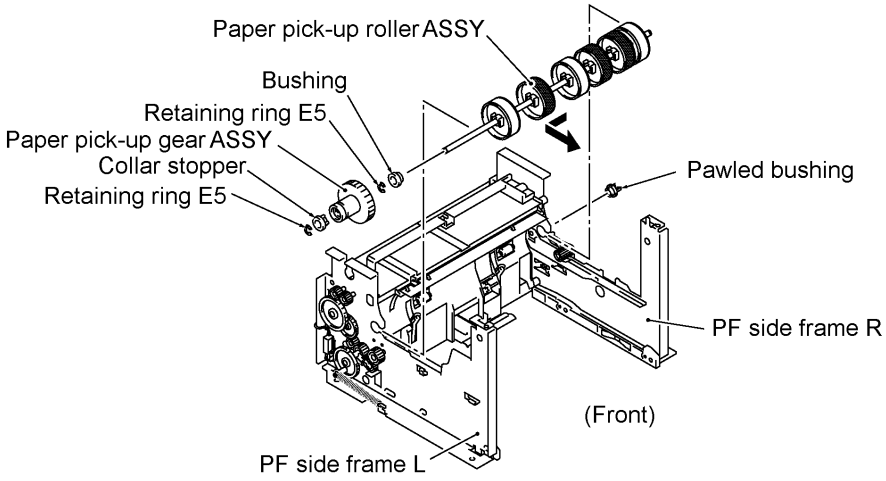
(1) Remove the retaining ring E5 from the left end of the paper pick-up roller shaft, then pull out the collar stopper and paper pick-up gear ASSY.

(2) Remove the retaining ring E5 and pull out the bushing.

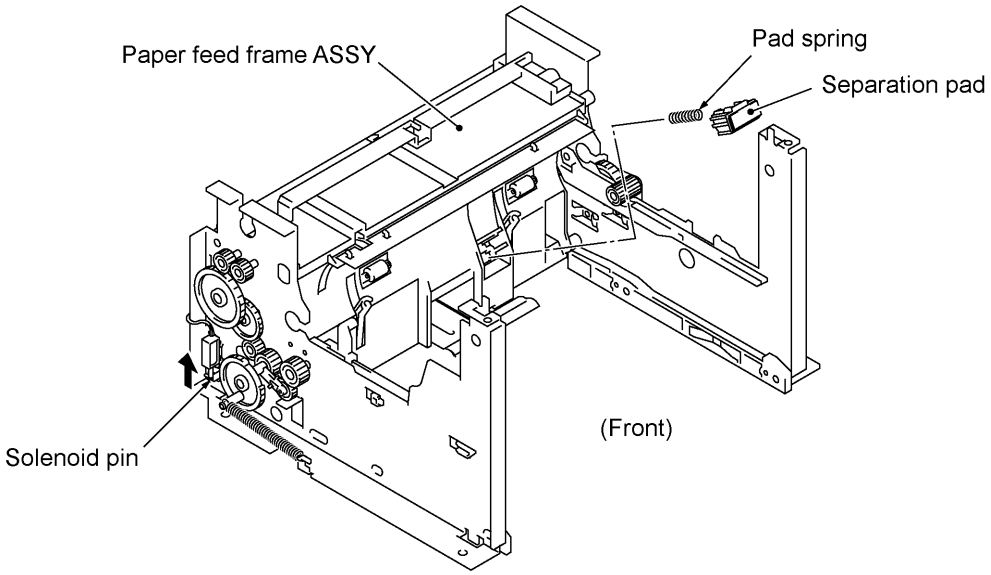
(3) Remove the pawled bushing from the right end of the paper pick-up roller shaft by pulling its pawls outwards.

(4) Remove the paper pick-up roller ASSY in the direction of the arrow, taking care not to break the registration sensor actuator.

NOTE: Keep the paper pick-up rollers away from grease.

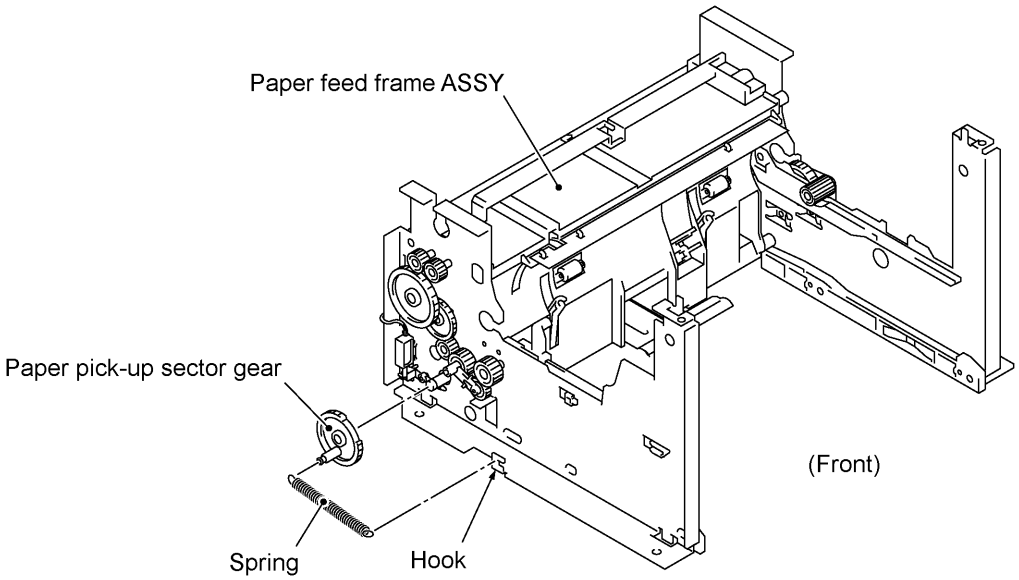


(5) Push up the solenoid pin, and the separation pad comes off with its spring.

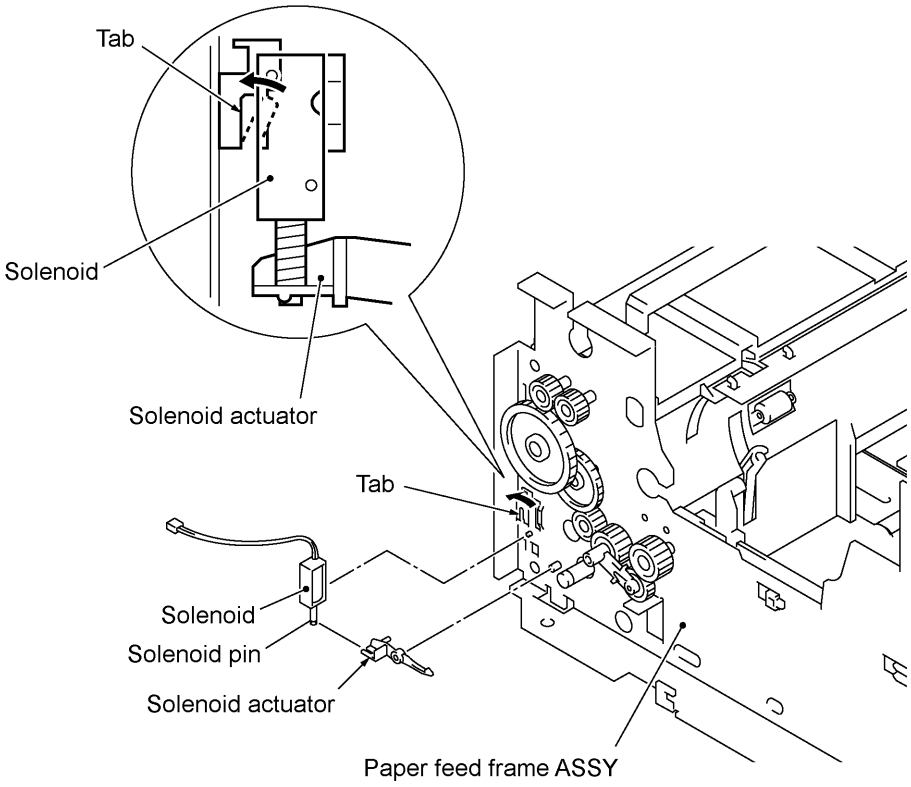


(6) Unhook the spring.

(7) Remove the paper pick-up sector gear by pulling its pawl outwards.

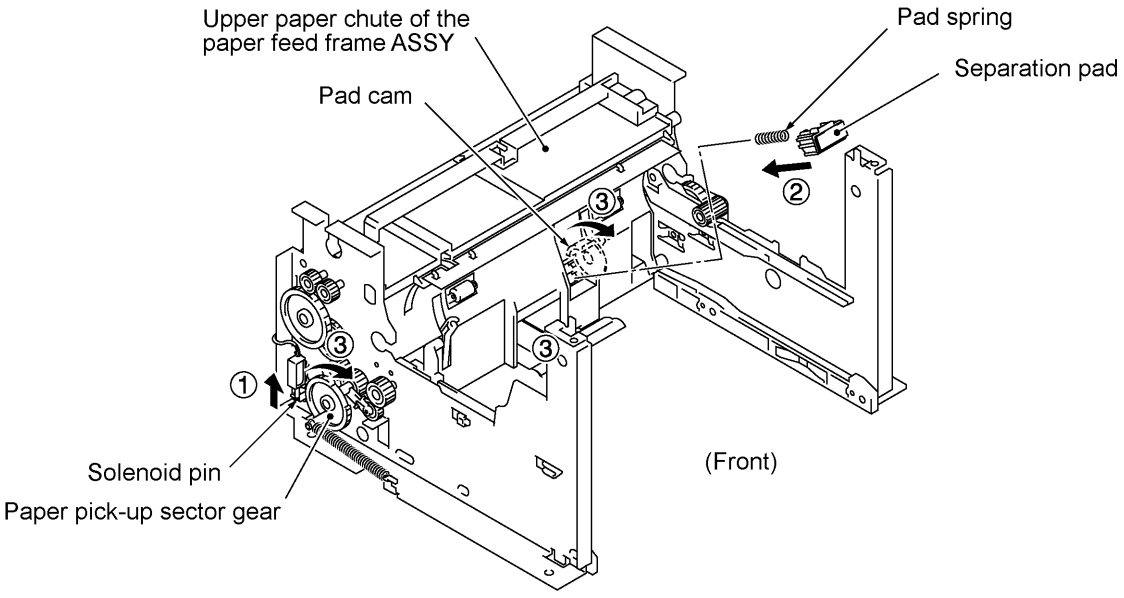


(8) Pull the tab provided on the paper feed frame ASSY outwards and remove the solenoid. The solenoid actuator, spring, and pin also come off.



n Reassembling Notes

- When setting the separation pad back into place, push up the solenoid pin (in the direction of arrow •), put the separation pad and its spring into the cutout provided in the upper paper chute of the paper feed frame ASSY (arrow ❟), and turn the paper pick-up sector gear clockwise (arrow ƒ).



1.33 Disassembly of Paper Feed Frame ASSY

> **Caution** Once removed, the components given in this subsection require the purge unit adjuster for reassembly. Refer to Section 3, "ADJUSTMENT" in this chapter.

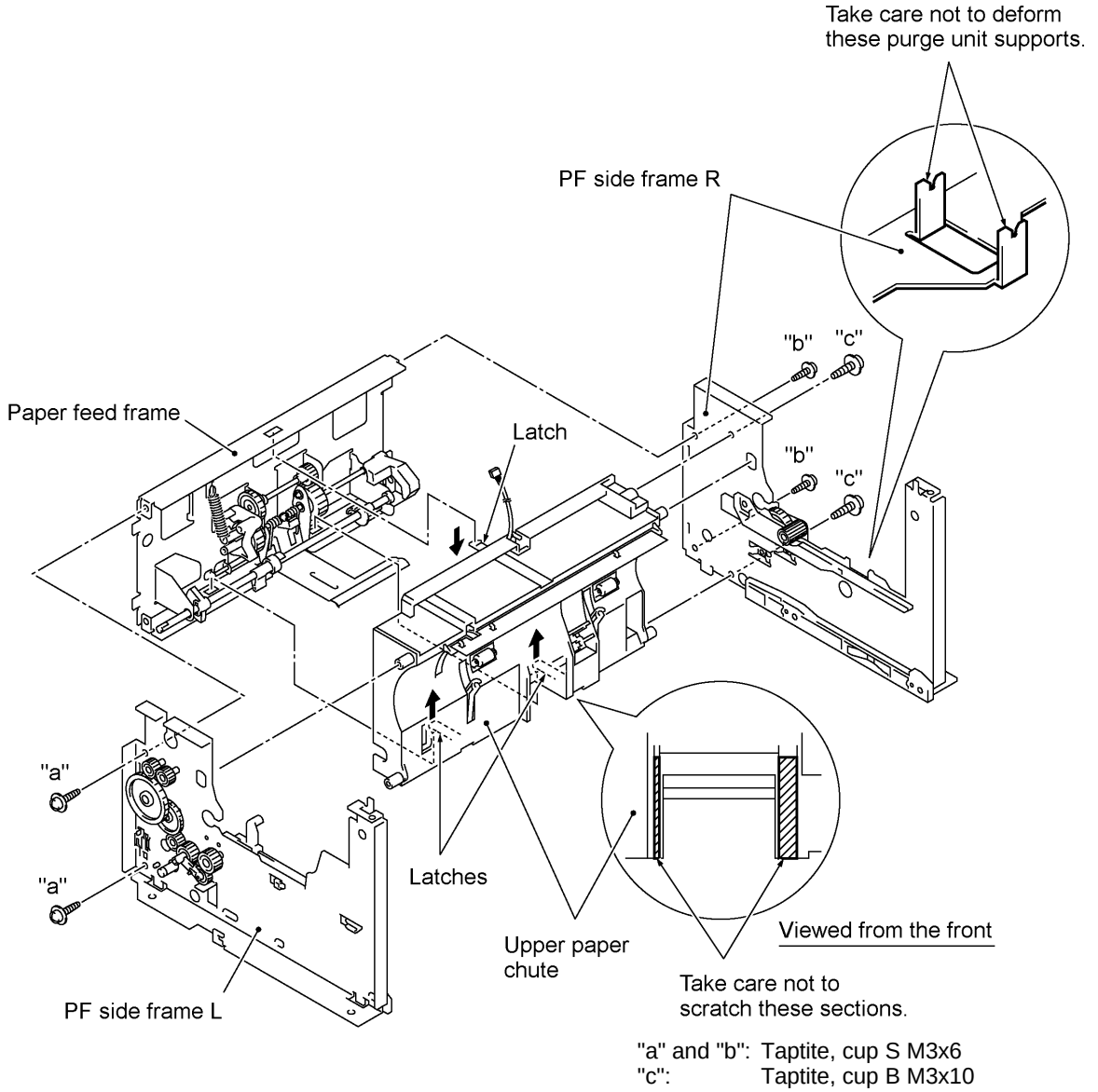
(1) Remove two screws "a" and take off the PF side frame L.

CAUTION: Do not place the paper feed frame ASSY with the PF side frame R facing down. Doing so will deform the purge unit supports.

(2) Remove four screws (two "b" and two "c") and take off the PF side frame R.

(3) Unhook the three latches and separate the upper paper chute from the paper feed frame.

CAUTION: When separating the upper paper chute, take care not to scratch hatched sections shown below which are used as the positioning face of the paper leading edge.



n Reassembling Notes

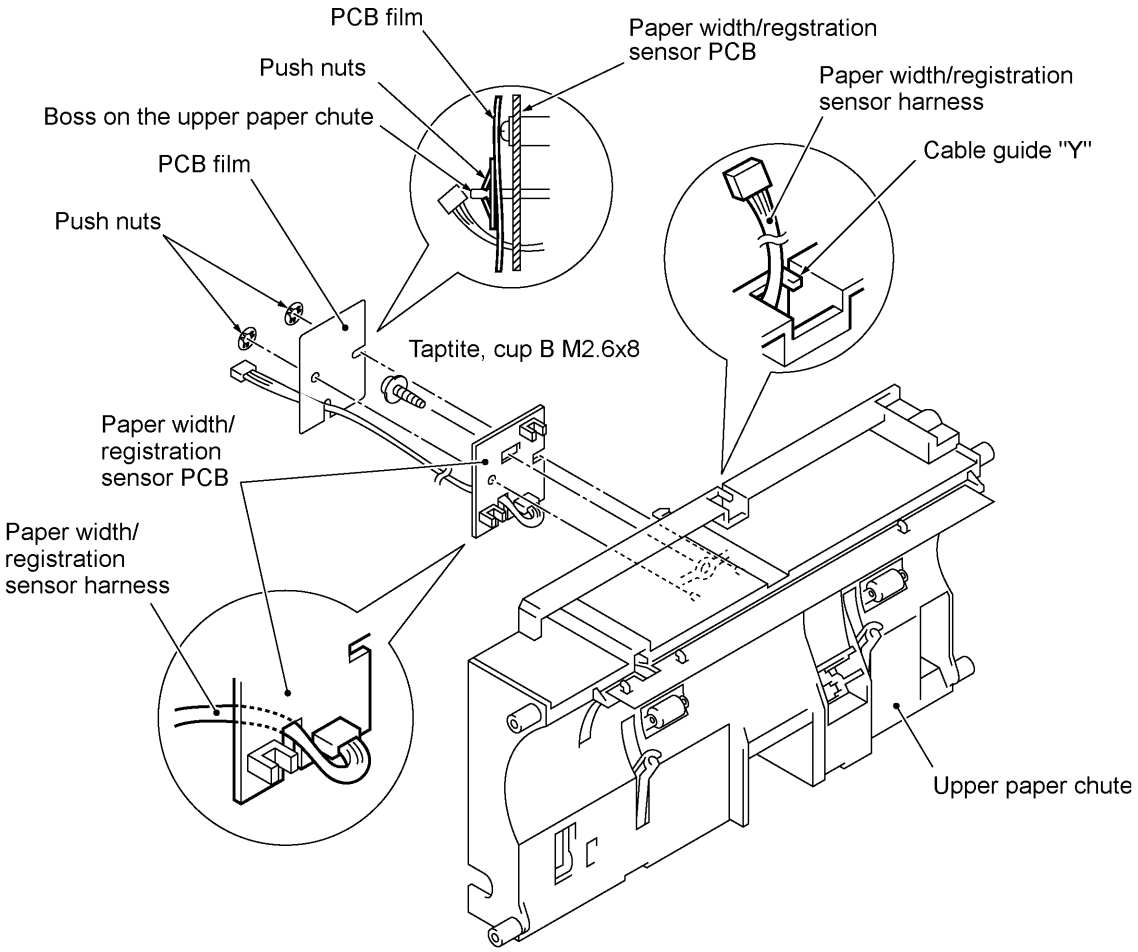
- Take care not to contaminate the upper paper chute, separation pad, and rollers with grease applied to the paper feed frame.

1.34 Paper Width/Registration Sensor PCB

> **Caution** Once removed, the components given in this subsection require the purge unit adjuster for reassembly. Refer to Section 3, "ADJUSTMENT" in this chapter.

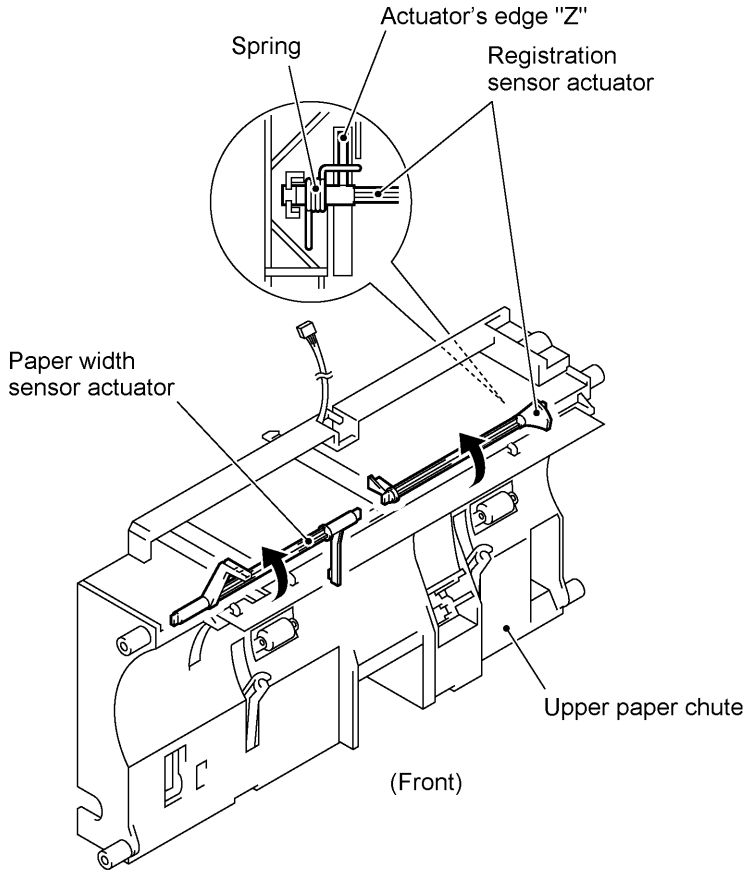
(1) Remove two push nuts and take off the PCB film

(2) Remove the screw and take off the paper width/registration sensor PCB from the upper paper chute.



n Reassembling Notes

- After putting the registration sensor actuator back into place, turn it so that the spring will be hooked on actuator's edge "Z" as shown below, and then set the paper width/registration sensor PCB.
- When setting the paper width/registration sensor PCB, route the harness as shown on the previous page.
- After securing the paper width/registration sensor PCB, check that the sensor actuators move smoothly.

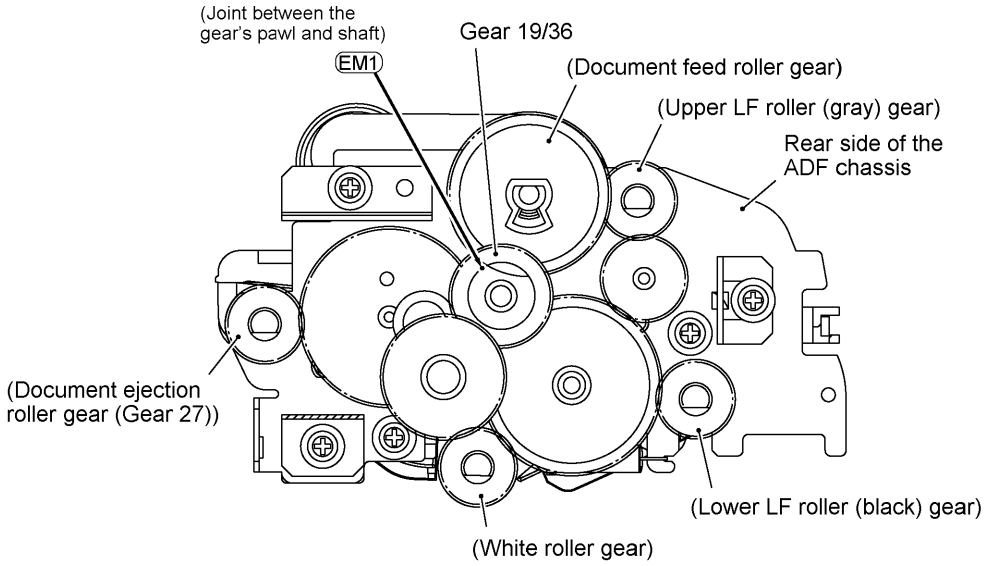


2. LUBRICATION

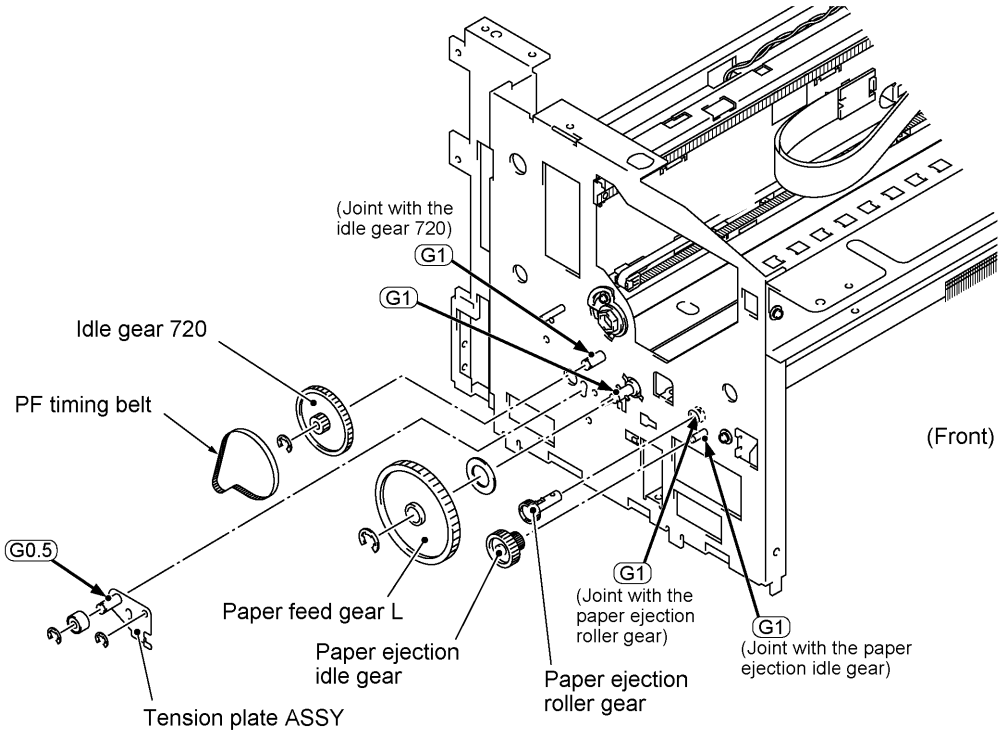
Apply the following lubricants to the lubrication points as illustrated below.

Lubricant type (Manufacturer)	Lubricant amount			
	Thin coat of grease with brush (1 mm^3)	Half of a rice-sized pinch of grease (3 mm^3)	Rice-sized pinch of grease (6 mm^3)	Approx. 20 mm^3
Molykote EM-30LG or -30L (Dow Corning)	———	———	(EM1)	———
Silicone grease G501 (Shin-etsu Silicone)	———	(G0.5)	(G1)	———
Conductive grease FLOIL 951P-32 (Kanto Kasei Ltd.)	(GE0.2)	———	———	(GE3)

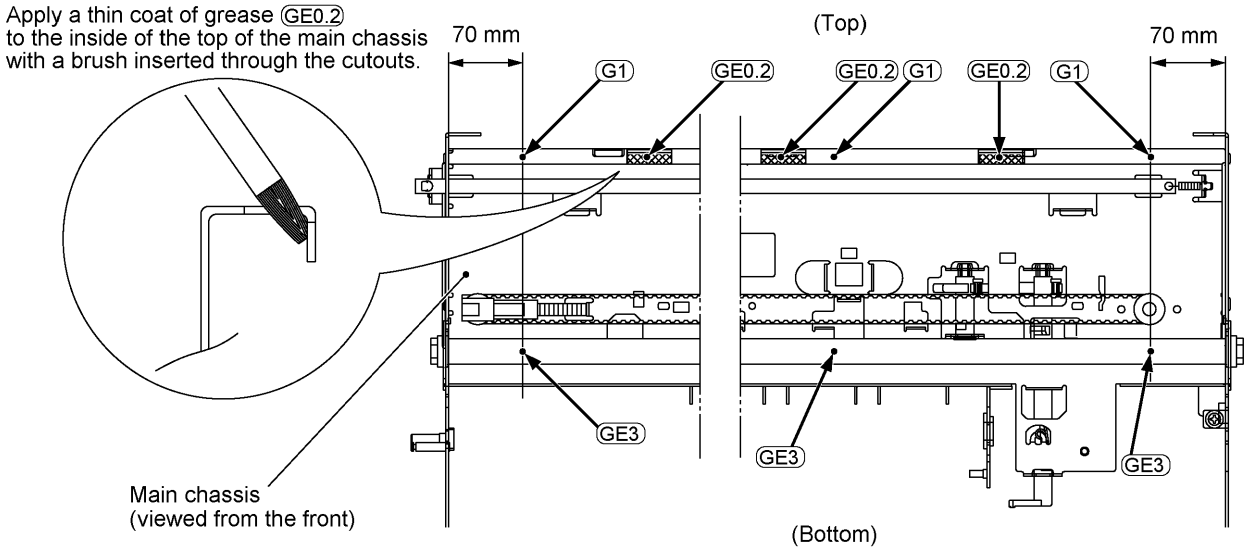
[1] ADF unit


(Joint between the gear's pawl and shaft)
EM1
Gear 19/36
(Document feed roller gear)
(Upper LF roller (gray) gear)
Rear side of the ADF chassis
(Document ejection roller gear (Gear 27))
(Lower LF roller (black) gear)
(White roller gear)

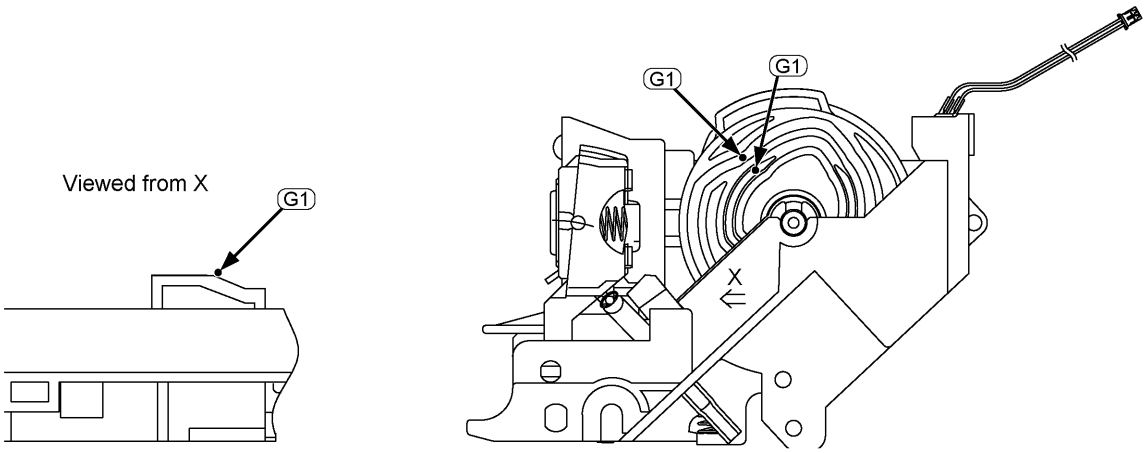
[2] Shafts on the left side of the main chassis



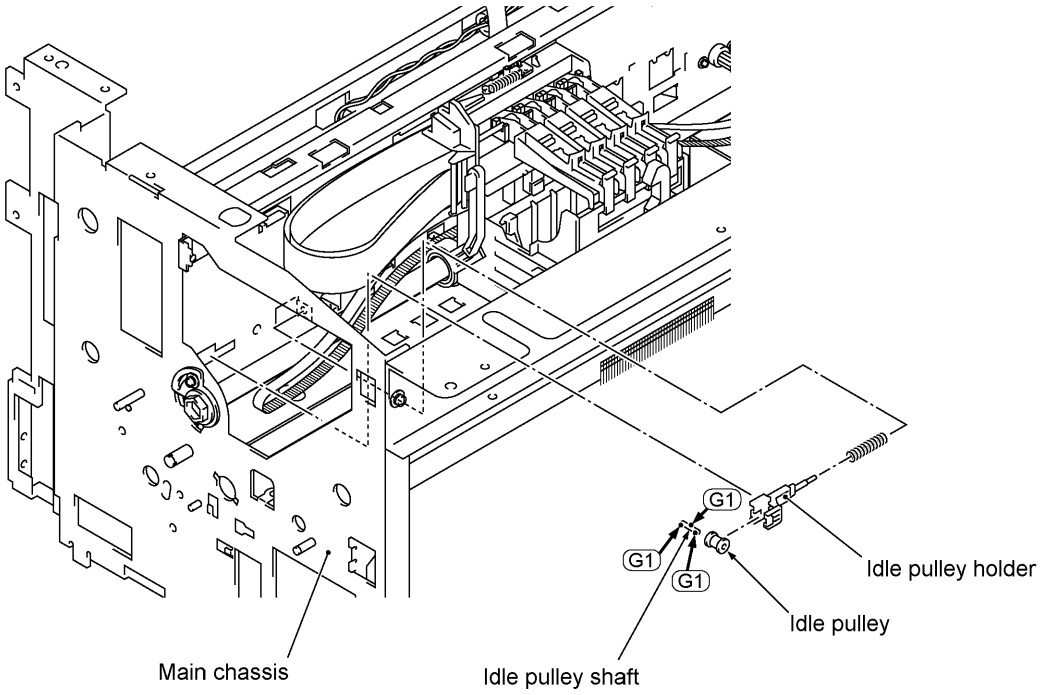
[3] Main chassis



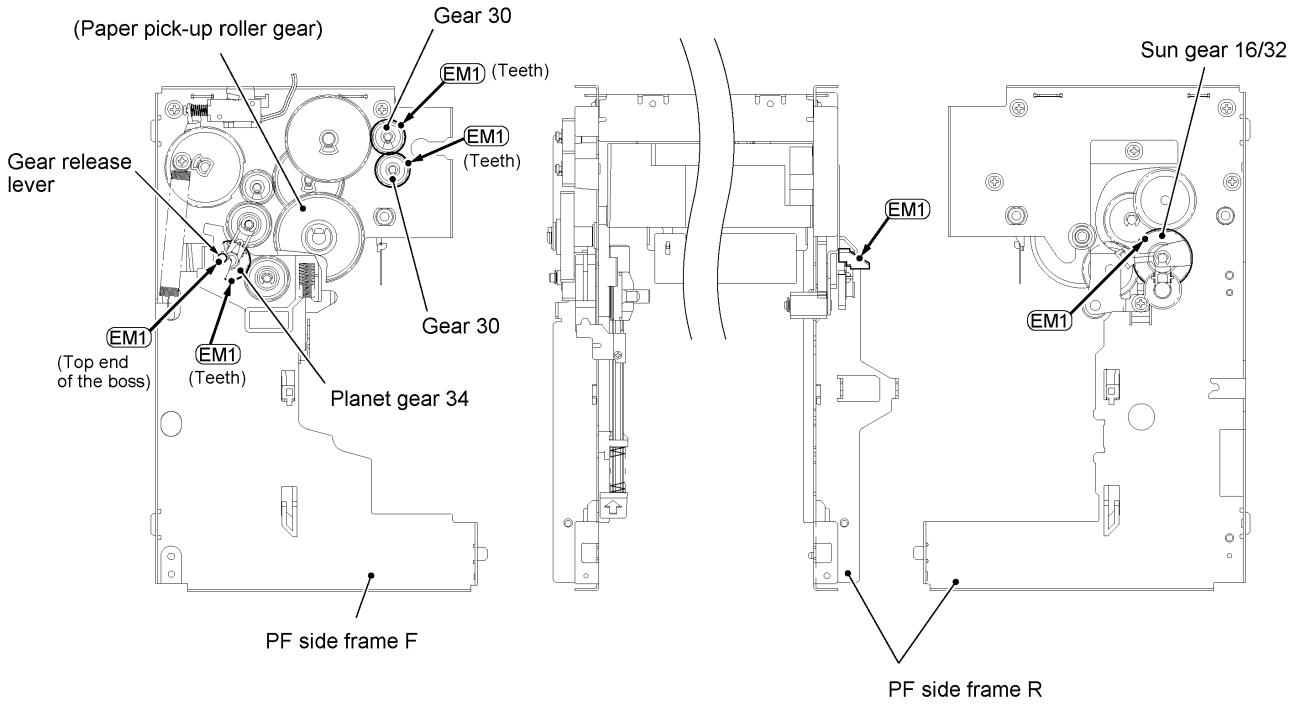
[4] Purge unit



[5] Idle pulley holder



[6] Paper feed frame ASSY



3. ADJUSTMENT

The adjustment jobs should be done on a flat, plain surface.

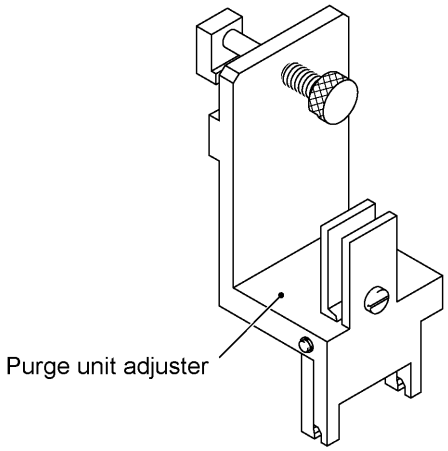
3.1 Purge Unit Front-to-rear Adjustment

If you have removed the purge unit, you need to adjust the position of the purge unit relative to the carriage rail by using the purge unit adjuster.

If you have removed also the carriage rail or carriage ASSY, it is recommended that you first adjust the head-platen gap (see Section 3.2) for accurate gap and then proceed to this purge unit adjustment.

Purge unit adjuster

The purge unit adjuster is shown below.

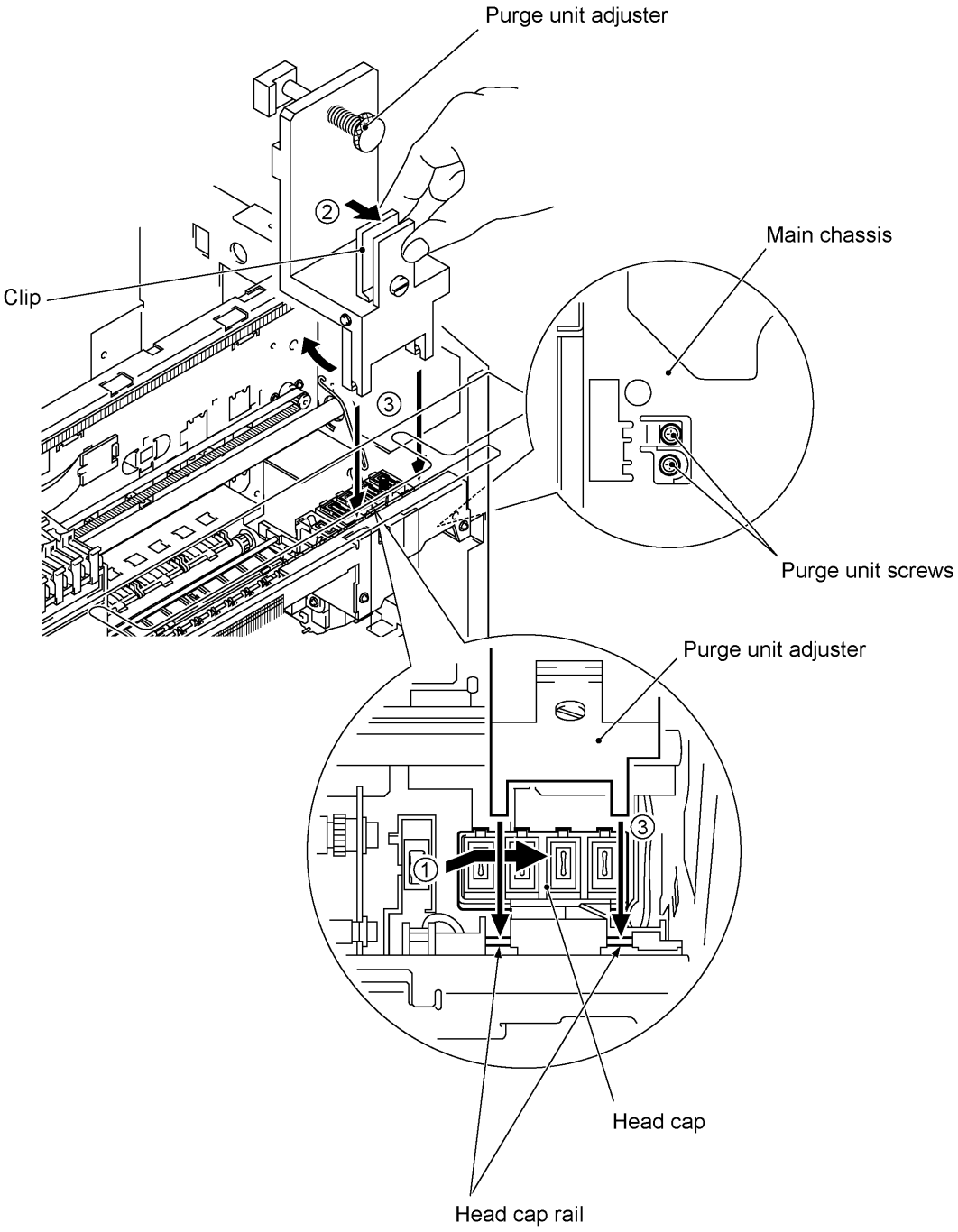


Adjustment procedure

(1) Move the carriage to the left end of the carriage rail.

(2) Put the removed purge unit back into place, and then temporarily tighten the two screws at the right side.

(3) Slightly move the head cap to the right with a flat screwdriver (in the direction of arrow •) so that the head cap rail can be seen as illustrated below, pinch the upper end of the clip (arrow ❟) to open its lower end, and make the clip catch the head cap rail (arrow ƒ).



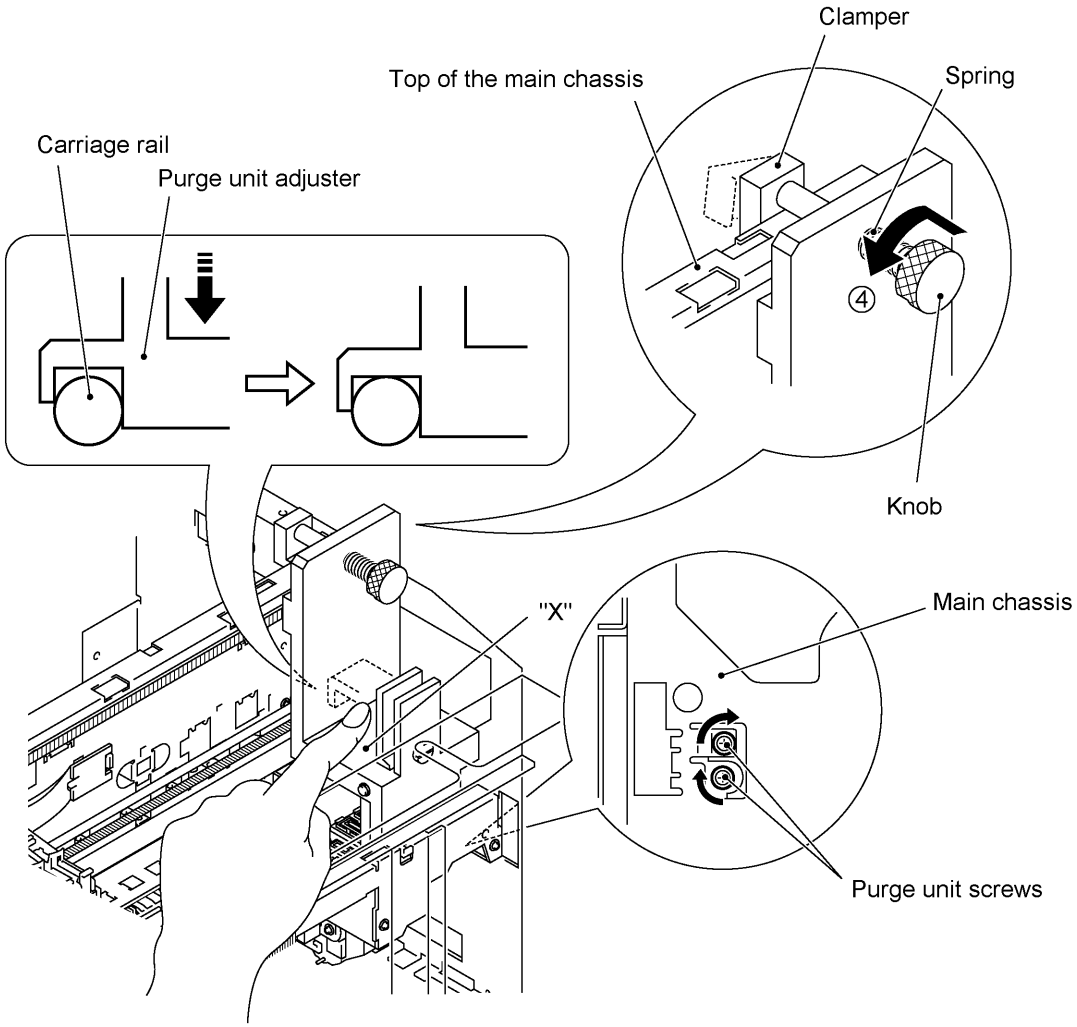
(4) Fit the purge unit adjuster over the carriage rail as shown below.

NOTE: Take care not to scratch or damage the carriage rail.

(5) While pressing the knob to the rear, turn it counterclockwise (in the direction of arrow „) in order to clamp the purge unit adjuster to the top of the main frame.

(6) While pushing down the purge unit adjuster at section "X," fully tighten the purge unit screws.

(7) Remove the purge unit adjuster.



3.2 Head-platen Gap Adjustment

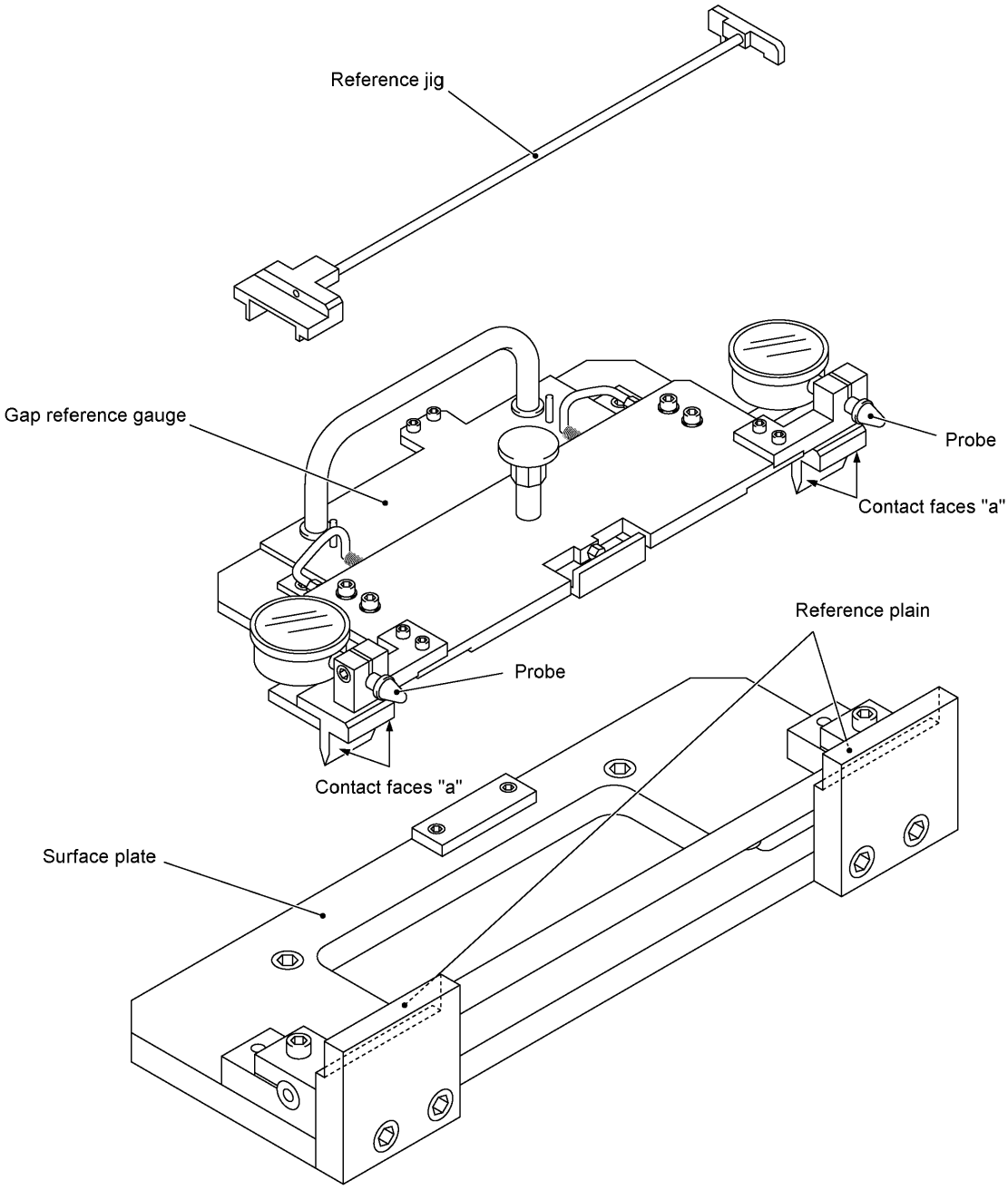
If you have removed the carriage rail or carriage ASSY, it is recommended that you adjust the gap between the print head and the platen by using the gap adjustment jig.

Gap adjustment jig

The gap adjustment jig consists of the reference jig, gap reference gauge and surface plate as illustrated below.

NOTE: Do not touch the reference plain or the ends of the probes.

NOTE: Take care not to stain or scratch contact faces "a" (that are to be fitted to the carriage rail) of the gap reference gauge.



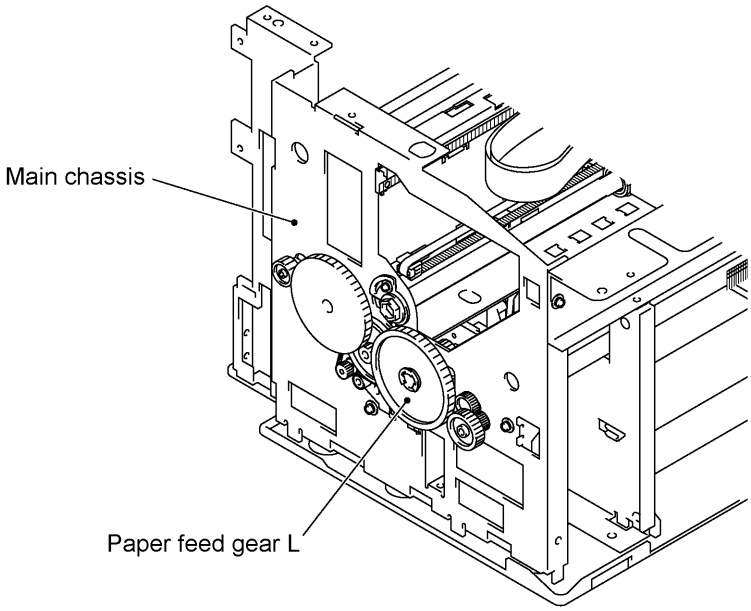
Adjustment procedure

(1) Place the facsimile equipment on a flat, firm surface.

(2) Secure the carriage rail and carriage ASSY to the main frame.

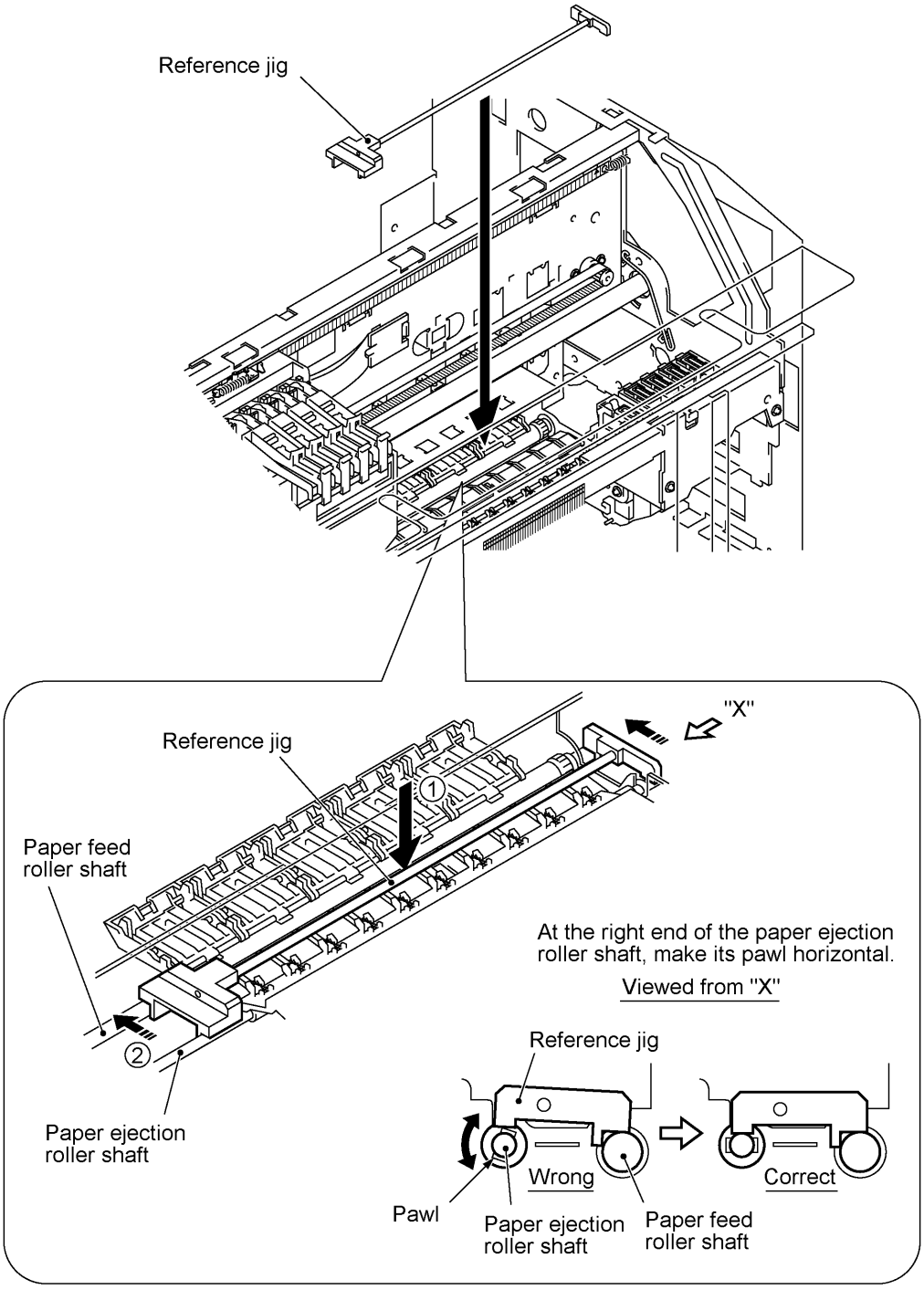
(3) Move the carriage to the left end of its travel.

NOTE: If the carriage is locked in the home position, rotate the paper feed gear L at the left side of the main chassis to retract the carriage lock.



(4) At the right end of the paper ejection roller shaft, check that the pawl is in a horizontal position as illustrated on the next page. If not horizontal, turn the paper ejection roller to make the pawl horizontal.

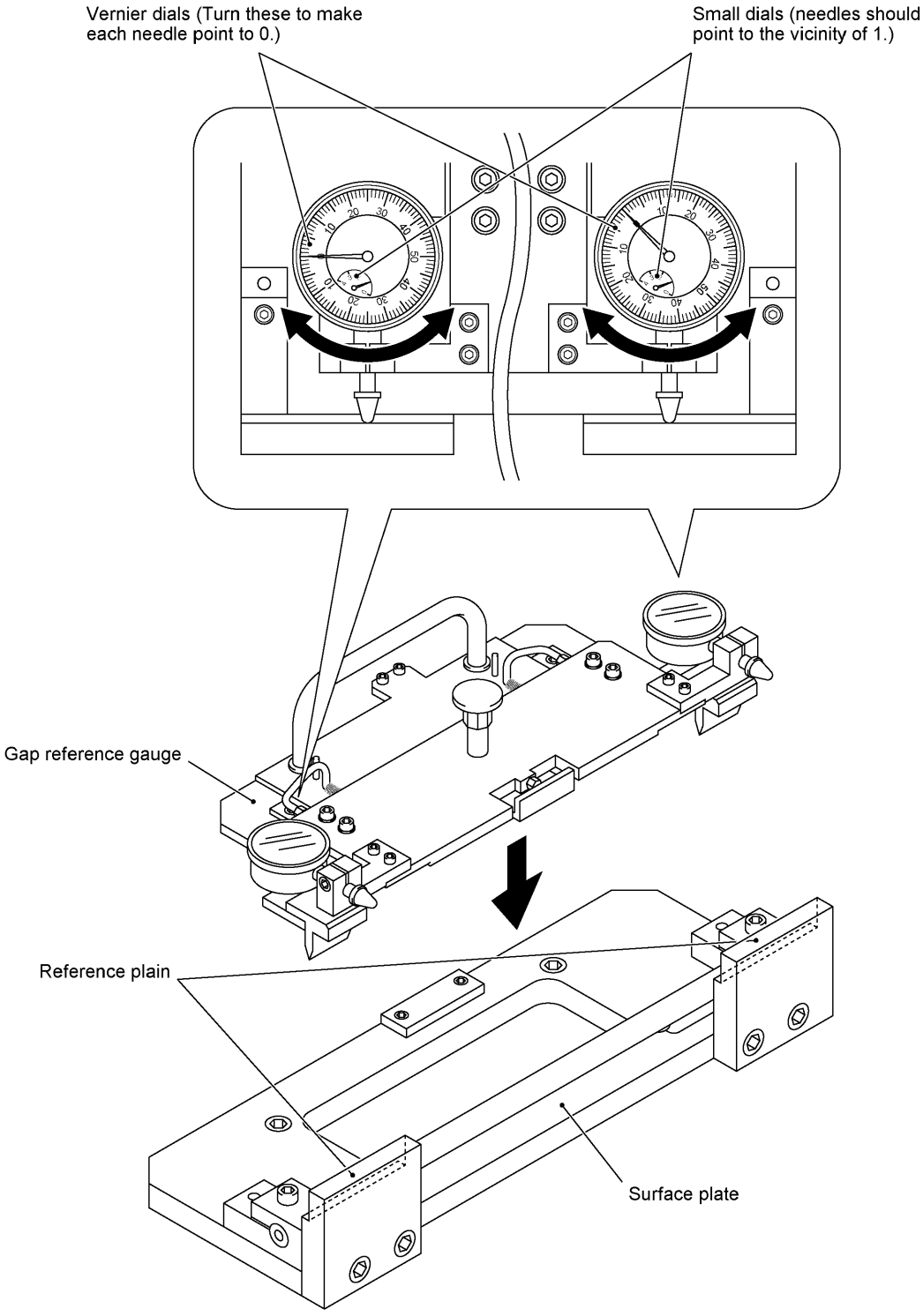
(5) Put the reference jig on the paper ejection roller shaft and paper feed roller shaft (in the direction of arrow •). Then push it to the rear (arrow ,).


Reference jig
"X"
Reference jig
①
Paper feed roller shaft
②
Paper ejection roller shaft
At the right end of the paper ejection roller shaft, make its pawl horizontal.
Viewed from "X"
Reference jig
Wrong
Correct
Pawl
Paper ejection roller shaft
Paper feed roller shaft

(6) Put the gap reference gauge on the surface plate.

Check the small dials to see that each needle points to the vicinity of 1. If either of the needles deviates significantly from 1, turn the corresponding vernier dial. One turn of the vernier dial rotates the needle of the small dial by one graduation.

Press the gap reference gauge against the reference plain of the surface plate and then turn the two vernier dials to make each needle point to zero (0).

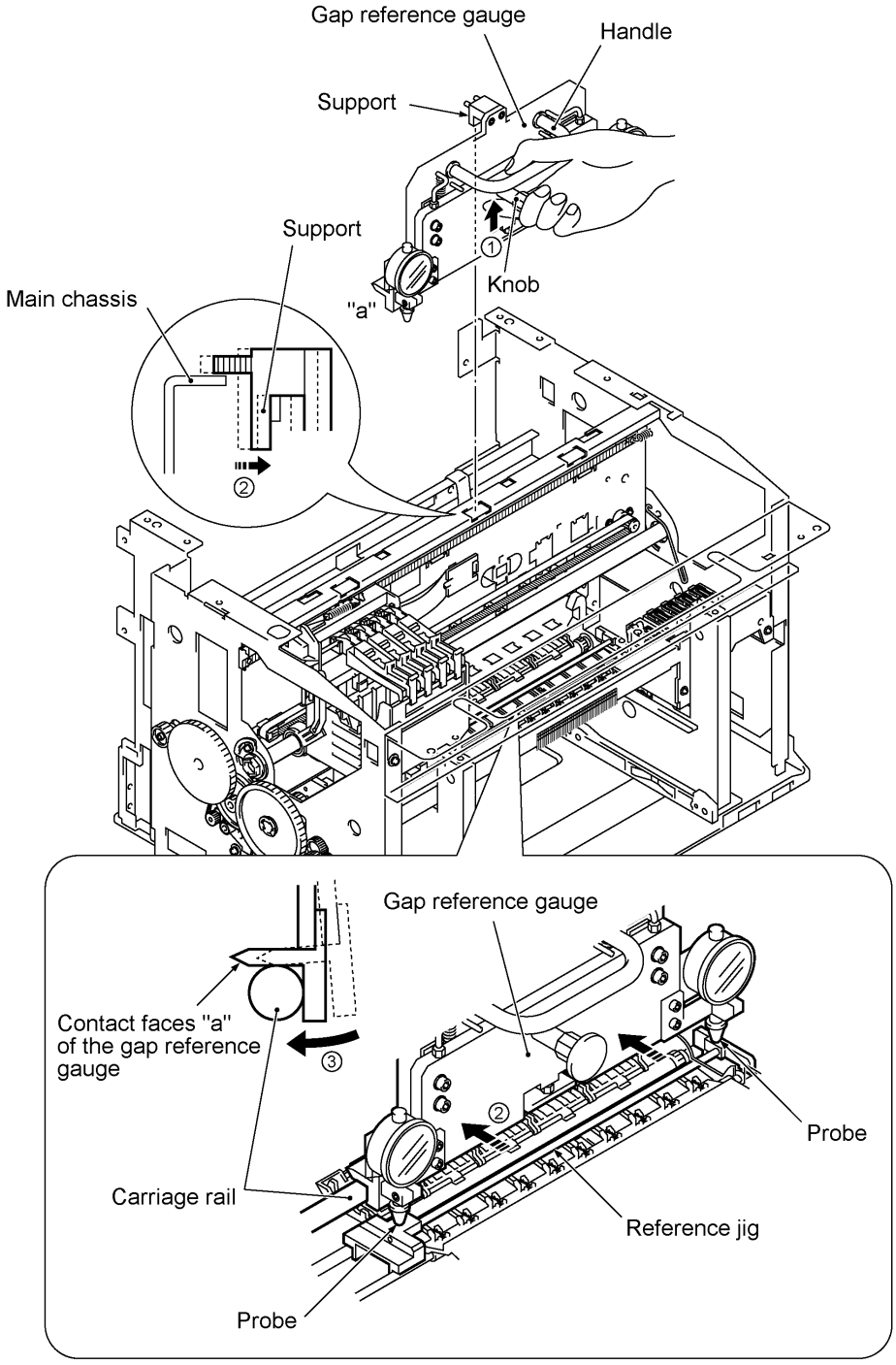

Vernier dials (Turn these to make each needle point to 0.)
Small dials (needles should point to the vicinity of 1.)
Gap reference gauge
Reference plain
Surface plate

(7) Gently take off the gap reference gauge from the surface plate and hold the handle as shown below.

(8) While pulling up the knob (in the direction of arrow •) to prevent the probes from striking against facsimile components, first slightly tilt the gap reference gauge to the rear, hook its support in the cutout provided in the main frame, bring the probes into contact with the reference jig preset in step (5) and then tilt it towards you (arrow ❟).

If the head-platen gap is correct, those probes will be in contact with the reference jig so that the needles of the small dials will point to the vicinity of 1 and those of the vernier dials will point to zero.

If the needles point to any other values, proceed to the following steps to adjust the gap.

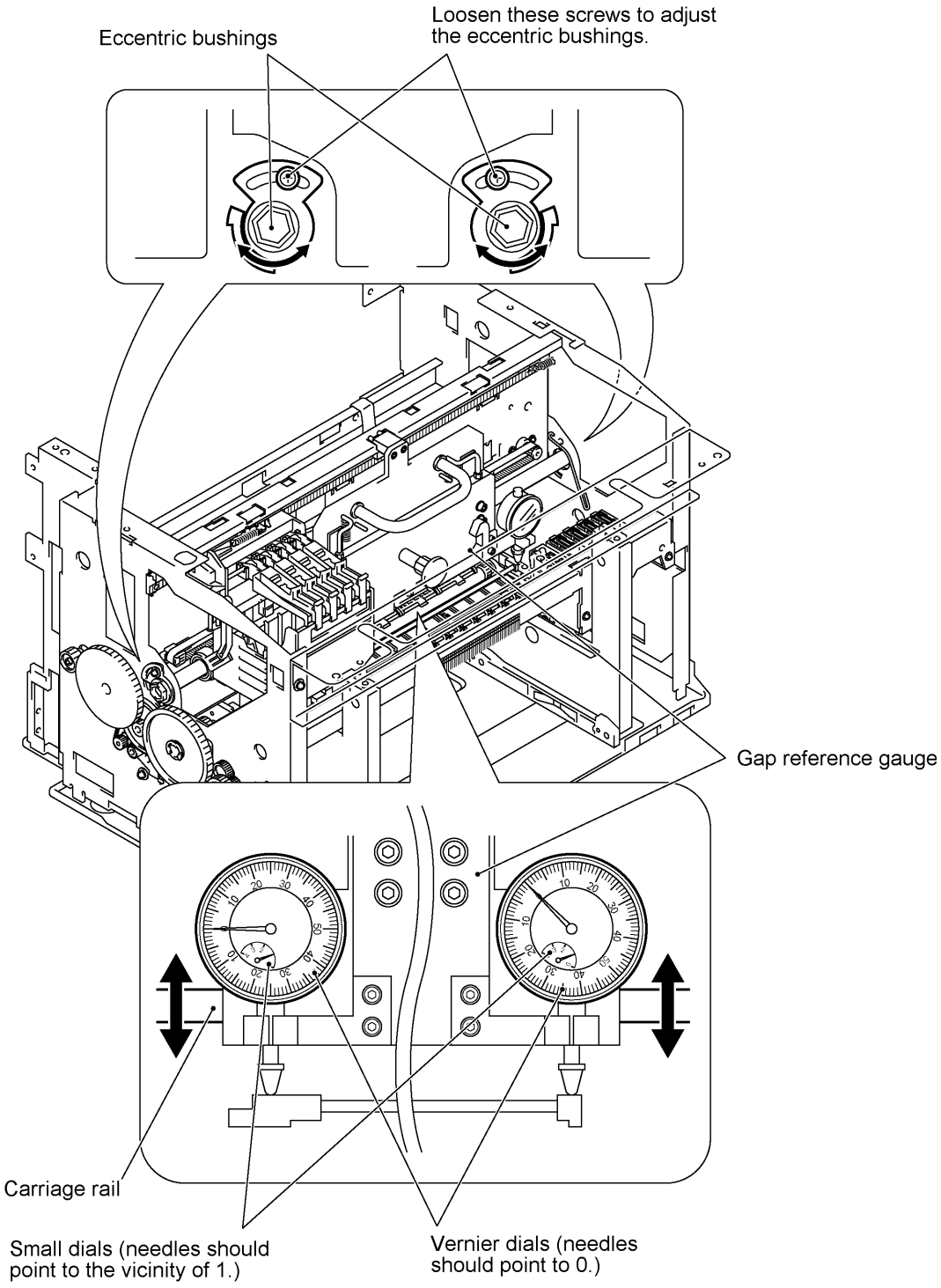


(9) Loosen the screws on the eccentric bushings R and L, and then turn those bushings so that the needles of the small dials point to the vicinity of 1 and those of the vernier dials point to zero.

(10) Tighten the screws on the eccentric bushings.

After tightening these screws, the needles of the vernier dials may be deflected from zero. Deflection within ±0.03 is negligible.

(11) Remove the gap reference gauge and reference jig.


Eccentric bushings
Loosen these screws to adjust the eccentric bushings.
Gap reference gauge
Carriage rail
Small dials (needles should point to the vicinity of 1.)
Vernier dials (needles should point to 0.)

CHAPTER V.

MAINTENANCE MODE

CHAPTER V. MAINTENANCE MODE

CONTENTS

1. ENTRY INTO THE MAINTENANCE MODE V-1
2. LIST OF MAINTENANCE-MODE FUNCTIONS V-2
3. DETAILED DESCRIPTION OF MAINTENANCE-MODE FUNCTIONS V-4
   - 3.1 EEPROM Parameter Initialization V-4
   - 3.2 Printout of Scanning Compensation Data V-5
   - 3.3 ADF Performance Test V-7
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   - 3.6 Operational Check of LCD V-46
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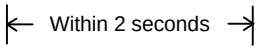
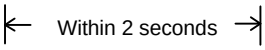
   - 3.13 EEPROM Customizing V-54
   - 3.14 Equipment Error Code Indication V-55
   - 3.15 Output of Transmission Log to the Telephone Line V-55

1. ENTRY INTO THE MAINTENANCE MODE

MFC9100C: To make the facsimile equipment enter the maintenance mode, press the **Function**, *****, **2**, **8**, **6**, and **4** keys in this order.



MFC760: To make the facsimile equipment enter the maintenance mode, press the **Menu**, *****, **2**, **8**, **6**, and **4** keys in this order.



The equipment beeps for approx. one second and displays " ▮▮ MAINTENANCE ▮▮▮ " on the LCD, indicating that it is placed in the initial stage of the maintenance mode, a mode in which the equipment is ready to accept entry from the keys.

To select one of the maintenance-mode functions listed in Section 2, enter the corresponding 2-digit function code with the numerical keys on the control panel. (The details of each maintenance-mode function are described in Section 3.)

NOTES:
- Pressing the **9** key twice in the initial stage of the maintenance mode makes the equipment exit from the maintenance mode, restoring it to the standby state.
- Pressing the **Stop** key after entering only one digit restores the equipment to the initial stage of the maintenance mode.
- If an invalid function code is entered, the equipment resumes the initial stage of the maintenance mode.

2. LIST OF MAINTENANCE-MODE FUNCTIONS

Maintenance-mode Functions

Function Code	Function	Reference Subsection (Page)
01	EEPROM Parameter Initialization	3.1 (V-4)
02	————	————
03	————	————
04	————	————
05	Printout of Scanning Compensation Data	3.2 (V-5)
06	————	————
07	————	————
08	ADF* Performance Test	3.3 (V-7)
09	Test Pattern 1	3.4 (V-8)
10	Firmware Switch Setting	3.5 (V-9)
11	Printout of Firmware Switch Data	3.5 (V-45)
12	Operational Check of LCD	3.6 (V-46)
13	Operational Check of Control Panel PCB (Check of Keys and Buttons)	3.7 (V-46)
32	Sensor Operational Check	3.8 (V-48)
55	CCD Scanner Area Setting	3.9 (V-49)
57	Setting the Sensing Reference Levels of Black Ink Empty Sensor	3.10 (V-50)
65	Alignment of Vertical Print Lines	3.11 (V-52)
69	Initial Adjustment of PWM Value (Aging of the carriage)	3.12 (V-54)
74	EEPROM Customizing	3.13 (V-54)
82	Equipment Error Code Indication	3.14 (V-55)
87	Output of Transmission Log to the Telephone Line	3.15 (V-55)
91	EEPROM Parameter Initialization (except the telephone number storage area)	3.1 (V-4)
99	Exit from the Maintenance Mode	---- (V-1)

* ADF: Automatic document feeder

- **IMPORTANT** -

Basically, the maintenance-mode functions listed on the previous page should be accessed by service personnel only. However, you may allow end users to access some of these under the guidance of service personnel (e.g., by telephone).

The user-accessible functions (codes 10, 11, 12, 82, 87 and 91) are shaded in the table given on the previous page. Function code 10 accesses the firmware switches WSW01 to WSW36, each of which has eight selectors. You should not allow end users to access all of those selectors, but you may allow them to access user-accessible selectors which are shaded in the firmware switch tables in Subsection 3.5.

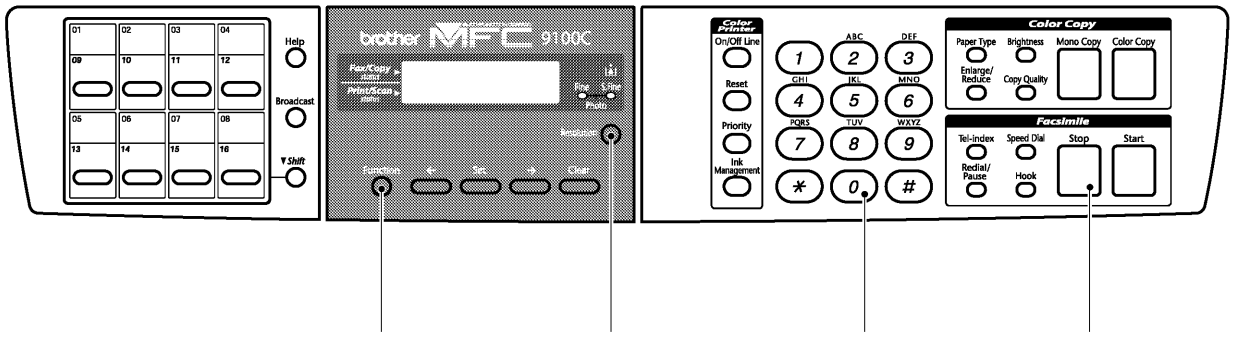
The service personnel should instruct end users to follow the procedure given below.

(1) MFC9100C: Press the **Function** and **Resolution** keys in this order.
MFC760: Press the **Menu** and **Resolution** keys in this order.
The LCD clears the current display.
NOTE: The **Resolution** key is inoperable during standby for redialing and timer.

(2) Press the **0** key.

(3) Enter the desired function code (10, 11, 12, 82, 87, or 91) with the numerical keys.
For function code 10, access the desired firmware switch according to the operating procedure described in Subsection 3.5.

(4) To make the equipment return to the standby state, press the **Stop** key.



Function/Menu key

Resolution key

0 key

Stop key

3. DETAILED DESCRIPTION OF MAINTENANCE-MODE FUNCTIONS

3.1 EEPROM Parameter Initialization

n Function

The equipment initializes the parameters, user switches, and firmware switches registered in the EEPROM, to the initial values. Entering the function code 01 initializes almost all of the EEPROM areas, but entering 91 does not initialize some areas, as listed below.

<table>
<tr><th>Data item \ Function code</th><th>01</th><th>91</th></tr>
<tr><td>Maintenance-mode functions
User switches
Firmware switches
Remote activation code
Activity report</td><td rowspan="2">All of these will be initialized</td><td>These will be initialized</td></tr>
<tr><td>Station ID data
Outside line number
Telephone function registration
One-touch dialing
Speed dialing
Group dialing</td><td>These will <u>not</u> be initialized</td></tr>
<tr><td>EEPROM customizing code (4-digit)</td><td colspan="2">This will <u>not</u> be initialized.
(Note that the first digit of the 4-digit code will be initialized to "0." If the code is <u>1</u>001, for example, it will be initialized to <u>0</u>001.)</td></tr>
</table>

NOTE: If you replace the main PCB with one used for other facsimile equipment, carry out this procedure and then customize the EEPROM (maintenance-mode function code 74 in Section 3.13).

n Operating Procedure

(1) Press the **0** and **1** keys (or the **9** and **1** keys according to your need) in this order in the initial stage of the maintenance mode.

The "PARAMETER INIT" will appear on the LCD.

(2) Upon completion of parameter initialization, the equipment returns to the initial stage of the maintenance mode.

3.2 Printout of Scanning Compensation Data

n Function

The equipment prints out the white and black level data for scanning compensation.

n Operating Procedure

Do not start this function merely after powering on the equipment but start it after carrying out a sequence of scanning operation. Unless the equipment has carried out any scanning operation, this function cannot print out correct scanning compensation data. This is because at the start of scanning operation, the equipment initializes white and black level data and takes in the scanning compensation reference data.

(1) Press the **0** and **5** keys in this order in the initial stage of the maintenance mode.

The "WHITE LEVEL 1" will appear on the LCD.

(2) The equipment prints out the scanning compensation data list containing the following:

a) White level data for red image (310 bytes)
b) White level data for green image (310 bytes)
c) White level data for blue image (310 bytes)
d) Black level data (4 bytes for red, green, blue, and monochrome images, one byte/color)
e) Dark level offset data (4 bytes for red, green, blue, and monochrome images, one byte/color)
f) Gain control data (8 bytes for red, green, blue, and monochrome images, two bytes/color)
g) A/D converter reference level for center value (2 bytes for color and monochrome images, one byte/color)
h) A/D converter reference level for full range (2 bytes for color and monochrome images, one byte/color)

(3) Upon completion of recording of the compensation data list, the equipment returns to the initial stage of the maintenance mode.

NOTE: When the equipment prints monochrome images after monochrome scanning, only the green data is valid.

NOTE: If any data is abnormal, its code will be printed in inline style, as shown on the next page.

NOTE: Out of eight picture elements of white level data, one byte of the minimum value will be outputted.

```
7000 : 84 88 8A 8B 8F 8E 90 93  96 97 99 9A 9A 9F 9F 9F
7010 : A2 A5 A8 A7 AB AD AA AC  AF B2 B9 BC BA BD BF BC
7020 : BF BF C0 BE C1 C1 C2 C2  BE C2 BF BD BF C1 BF C1
7030 : BC BE BE BB BD BC B9 BB  BA BB B8 B9 B9 B9 B8 B7
7040 : BA B9 B5 B7 B6 B7 B5 B6  B3 B4 B6 B6 B3 B4 B5 B5
7050 : B1 B1 B4 B2 B5 B2 B6 B5  B4 B5 B6 B6 B2 B5 B3 B3
7060 : B3 B3 B1 B0 B3 B1 B0 B0  AE AC AE AA AA A7 A7 A7
7070 : A9 A9 A9 A9 AA AA AB A7  AE AB AC AA AA AD AB AA
7080 : A9 A8 AB AA AA A8 AA AB  AA AA A9 A5 9E 8F 7B 62
7090 : 1B 1A 18 19 18 18 15 14  18 19 16 14 14 17 18 16
70A0 : 16 17 1A 1B 1A 17 17 1E  1D 1D 1D 1C 1A 19 1E 1B
70B0 : 1B 19 16 13 16 1E 6B 82  9C AC AE AE AF AF B1 B1
70C0 : B4 B2 AF AF B1 B3 B5 B7  B6 B9 BB BA BB BA BE BE
70D0 : C1 C1 C0 C0 C1 C0 C1 C3  C2 C2 C7 C6 C7 C9 C7 C7
70E0 : C7 C8 CA CA CD CD CC CC  CD CE CF CB D0 CF CF D3
70F0 : D3 D4 D6 D9 DA D8 D9 DA  D8 D7 D4 DB DA DD DE E0
7100 : E2 DF DF E0 E1 E4 E6 E7  E6 E8 E8 E7 E9 E8 EB DD
7110 : E4 E4 E6 E5 E4 E5 E0 E3  E3 DC DA DD D5 D7 D8 D4
7120 : D0 CF CE CD CC C9 C7 C8  C3 BE BD BE B8 B5 B5 B2
7130 : AE AB A7 A5 A4 9F
```

```
7000 : 93 95 99 9C A0 9F A0 A2  A7 AA AB AD AE AD B3 B6
7010 : B5 B7 B9 BC BE C2 C0 C3  C3 C8 C8 C7 C8 CD CE CE
7020 : D3 D6 D3 D3 D8 DA DA D9  DB D9 DE DE E1 DF E1 D9
7030 : DE DE DA D6 DB DD D9 DA  D8 DB D9 D9 D9 D4 D9 CF
7040 : D5 D2 CF D1 D3 CF D0 CC  C5 CB CA C9 C7 C2 C7 C6
7050 : C6 C6 C2 C7 C4 C3 C2 C2  C2 C0 BE BE BD BD B9 BD
7060 : BC BB BB BC BA BB B9 B8  B8 B6 B9 BA B8 B9 B9 B8
7070 : B6 B9 B5 B6 B8 BB BC BA  BA B9 BC BC BB BA BA B8
7080 : BA BA BB BD BA B7 BA B8  B6 B8 B7 B4 AD A2 84 6A
7090 : 18 15 12 10 12 11 11 12  15 13 11 13 11 14 13 15
70A0 : 12 12 16 15 14 14 14 19  19 1B 1C 19 17 17 1B 1A
70B0 : 1B 13 14 10 12 27 70 8E  A7 B4 BA B8 B6 B7 B8 B7
70C0 : B6 BA BA BB BB BD BA BC  BD BD C0 C0 BD BF C0 C3
70D0 : BD BB BB BC C3 C2 C2 C7  C7 C6 C8 C8 C7 CA CD CB
70E0 : CD CC CA CB CF D0 D3 D4  D2 D4 D7 D3 D4 D5 DB DC
70F0 : DB DD D9 E1 E1 E5 E5 DF  E3 E4 E4 E2 E8 EA ED EF
7100 : EB EE E9 EF F0 F1 EF F0  F0 ED EC EB E8 E6 E9 E8
7110 : E6 E1 DD E5 DB D8 D7 D4  D1 D0 CF D1 CE CC C8 CD
7120 : C5 C7 C2 BF BC BB B7 B7  B5 B1 B0 AC AF AD AA A8
7130 : A4 A2 A1 9D 97 96
```

```
7000 : 99 9E 9F A4 A5 A7 AA AB  A9 AE B0 B3 B4 B4 B8 B8
7010 : BB BA BD C2 C2 C3 C3 C5  C3 C6 C9 C8 C9 CD CE D1
7020 : D0 D2 D2 D5 D6 D7 D7 D5  D5 D2 D6 D7 D7 D8 D8 D6
7030 : D4 D4 D2 D2 D2 D3 D2 D1  D0 CE D0 CE CB CC CD CB
7040 : C8 C9 C8 C6 C7 C4 C3 C0  C3 C1 C1 BF BD C0 BC BC
7050 : BC BB BF BD BC B9 BA BB  BB B8 B6 BA B6 B9 B7 B6
7060 : B9 B5 B4 B4 B6 B5 B3 B2  AE B0 AF B1 AF AE AF B1
7070 : B0 AF AC AE AE B0 B0 B0  AF AF B0 AE B0 AE AE AD
7080 : AE AF AF AB AD AC AA AD  AC AB A9 A9 A4 99 84 69
7090 : 19 17 16 14 15 16 15 12  16 14 15 16 15 14 18 17
70A0 : 14 13 16 1A 16 16 17 19  1C 1B 19 1A 19 18 1C 17
70B0 : 1B 18 15 13 14 21 71 88  9F A8 AF B1 AF B1 B1 B1
70C0 : B0 B0 B2 B3 B4 B6 B5 B6  B8 B8 B8 BC BB BB BC BD
70D0 : BD BC BF BE C1 BF BE C0  C0 C1 C3 C3 C6 C6 C7 C7
70E0 : C8 C9 CA CD CD CC CF CD  CF D1 D1 D3 D2 D4 D3 D7
70F0 : D9 D6 D7 DB DD DB DD DE  DF E3 E0 E1 E6 E5 E6 EA
7100 : E5 E9 EB E8 EA EB E9 EC  EA EA E9 E9 E8 EC EA E8
7110 : E6 E4 E6 E6 E5 E1 E0 DA  DB D7 DA D5 D7 D5 D4 D2
7120 : CE CD C9 C8 C9 C8 C6 C4  C3 BD BB BB B9 B7 B6 B2
7130 : B0 AC AA A7 A5 A0
```

```
7000 : 05 00 03 00
```

```
7000 : A0 99 9A A7
```

```
7000 : 78 00 6D 00 67 00 7E 00
```

```
7000 : 63 64
```

```
7000 : 3D 3E
```

Scanning Compensation Data List

3.3 ADF Performance Test

n Function

The equipment counts the documents fed by the automatic document feeder (ADF) and displays the count on the LCD for checking the ADF performance.

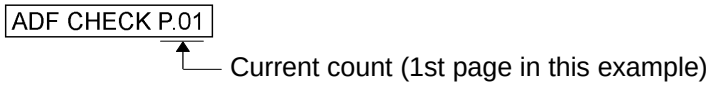
n Operating Procedure

(1) Set documents on the document tray. (Allowable up to the capacity of the document tray.)

The "DOC. READY" will appear on the LCD.

(2) Press the **0** and **8** keys in this order.

While counting the documents, the equipment feeds them in and out, displaying the current count on the LCD as shown below.



(3) After showing the final count, the equipment beeps for one second. To return the equipment to the initial stage of the maintenance mode, press the **Stop** key.

3.4 Test Pattern 1

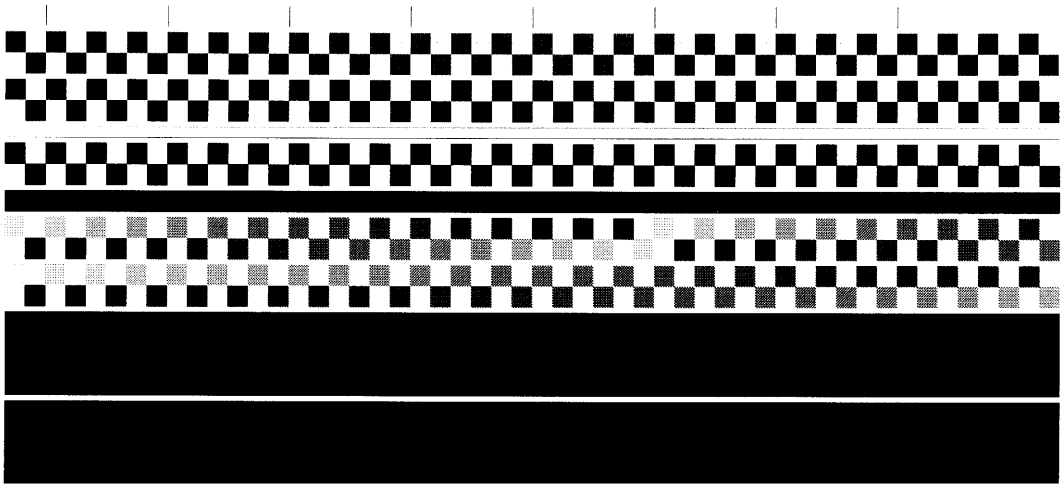
n Function

This function, much like the copying function, prints out test pattern 1 to allow the service personnel to check for record data missing or print quality.

n Operating Procedure

Press the **0** and **9** keys in this order in the initial stage of the maintenance mode.

The figure below shows test pattern 1.



Test Pattern 1

3.5 Firmware Switch Setting and Printout

[A] Firmware switch setting

n Function

The facsimile equipment incorporates the following firmware switch functions (WSW01 through WSW36) which may be activated with the procedures using the control panel keys and buttons. The firmware switches have been set at the factory in conformity to the communications standards and codes of each country. Do not disturb them unless necessary. Some firmware switches may not be applicable in some versions. The firmware switch data list indicates "Not used." for those inapplicable switches.

Firmware Switches (WSW01 through WSW36)

WSW No.	Function	Reference Page
WSW01	Dial pulse setting	V-11
WSW02	Tone signal setting	V-12
WSW03	PABX mode setting	V-13
WSW04	TRANSFER facility setting	V-15
WSW05	1st dial tone and busy tone detection	V-16
WSW06	**Pause** key setting and 2nd dial tone detection	V-17
WSW07	Dial tone setting 1	V-19
WSW08	Dial tone setting 2	V-20
WSW09	Protocol definition 1	V-21
WSW10	Protocol definition 2	V-22
WSW11	Busy tone setting	V-23
WSW12	Signal detection condition setting	V-24
WSW13	Modem setting	V-25
WSW14	AUTO ANS facility setting	V-26
WSW15	REDIAL facility setting	V-27
WSW16	Function setting 1	V-28
WSW17	Function setting 2	V-29
WSW18	Function setting 3	V-30
WSW19	Transmission speed setting	V-31
WSW20	Overseas communications mode setting	V-32
WSW21	TAD setting 1	V-33
WSW22	ECM and copy resolution setting	V-33
WSW23	Communications setting	V-34
WSW24	TAD setting 2	V-35
WSW25	TAD setting 3	V-35
WSW26	Function setting 4	V-36
WSW27	Function setting 5	V-37
WSW28	Function setting 6	V-38
WSW29	Function setting 7	V-39
WSW30	Function setting 8	V-39
WSW31	Function setting 9	V-40
WSW32	Function setting 10	V-41
WSW33	Function setting 11	V-42
WSW34	Function setting 12	V-43
WSW35	Function setting 13	V-43
WSW36	Function setting 14	V-44

n Operating Procedure

(1) Press the **1** and **0** keys in this order in the initial stage of the maintenance mode.

The equipment displays the "WSW00" on the LCD and becomes ready to accept a firmware switch number.

(2) Enter the desired number from the firmware switch numbers (01 through 36).

The following appears on the LCD:

WSWXX = 0 0 0 0 0 0 0 0

(3) Use the ◀ and ▶ keys to move the cursor to the selector position to be modified.

(4) Enter the desired number using the **0** and **1** keys.

(5) Press the **Set** key. This operation saves the newly entered selector values onto the EEPROM and readies the equipment for accepting a firmware switch number.

(6) Repeat steps (2) through (5) until the modification for the desired firmware switches is completed.

(7) Press the **Set** or **Stop** key to return the equipment to the initial stage of the maintenance mode.

NOTES:
- To cancel this operation and return the equipment to the initial stage of the maintenance mode during the above procedure, press the **Stop** key.
- If there is a pause of more than one minute after a single-digit number is entered for double-digit firmware switch numbers, the equipment will automatically return to the initial stage of the maintenance mode.

n Note

The user-accessible selectors of the firmware switches are shaded in the tables given on the following pages.

n Detailed Description for the Firmware Switches

WSW01 (Dial pulse setting)

Selector No.	Function	Setting and Specifications
1 2	Dial pulse generation mode	No. 1 2 0 0 : N 0 1 : N+1 1 0 : 10-N 1 1 : N
3 4	Break time length in pulse dialing	No. 3 4 0 0 : 60 ms 0 1 : 67 ms 1 0 : 40 ms (for 16 PPS) 1 1 : 64 ms (at 106-ms intervals)
5 6	Inter-digit pause	No. 5 6 0 0 : 800 ms 0 1 : 850 ms 1 0 : 950 ms 1 1 : 600 ms
7	Switching between pulse (DP) and tone (PB) dialing, by the function switch	0: Yes 1: No
8	Default dialing mode, pulse (DP) or tone (PB) dialing	0: PB 1: DP

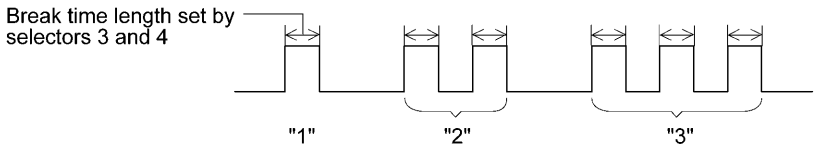
- **Selectors 1 and 2: Dial pulse generation mode**

  These selectors set the number of pulses to be generated in pulse dialing.

  N: Dialing "N" generates "N" pulses. (Dialing "0" generates 10 pulses.)
  N + 1: Dialing "N" generates "N + 1" pulses.
  10 - N: Dialing "N" generates "10 - N" pulses.

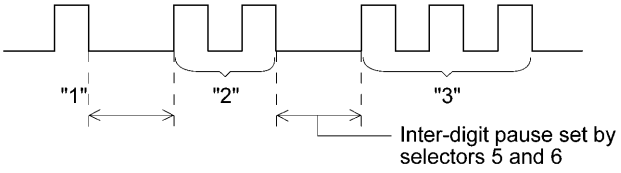
- **Selectors 3 and 4: Break time length in pulse dialing**

  These selectors set the break time length in pulse dialing.
  (Example: If "1," "2," and "3" are dialed when N is set by selectors 1 and 2.)



- **Selectors 5 and 6: Inter-digit pause**

  These selectors set the inter-digit pause in pulse dialing.
  (Example: If "1," "2," and "3" are dialed when N is set by selectors 1 and 2.)



- **Selector 7: Switching between pulse (DP) and tone (PB) dialing, by the function switch**

  This selector determines whether or not the dialing mode may be switched between the pulse (DP) and tone (PB) dialing by using the function switch.

- **Selector 8: Default dialing mode, pulse (DP) or tone (PB) dialing**

  This selector sets the default dialing mode (pulse dialing or tone dialing) which may be changed by the function switch. If the user switches it with the function switch when selector 7 is set to "0," the setting specified by this selector will also be switched automatically.

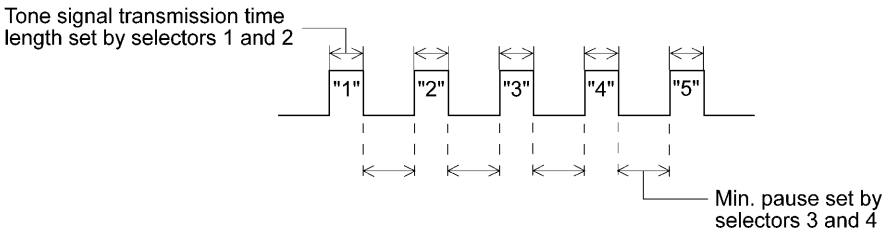
WSW02 (Tone signal setting)

Selector No.	Function	Setting and Specifications
1 2	Tone signal transmission time length	No. 1 2 0 0 : 70 ms 0 1 : 80 ms 1 0 : 90 ms 1 1 : 100 ms
3 4	Min. pause in tone dialing	No. 3 4 0 0 : 70 ms 0 1 : 80 ms 1 0 : 90 ms 1 1 : 140 ms
5 | 8	Attenuator for pseudo ring backtone to the line (selectable in the range of 0-15 dB)	0: 0 dB 1: 8 dB 0: 0 dB 1: 4 dB 0: 0 dB 1: 2 dB 0: 0 dB 1: 1 dB

- **Selectors 1 through 4: Tone signal transmission time length and Min. pause in tone dialing**

  These selectors set the tone signal transmission time length and minimum pause in tone dialing.

  (Example: If "1," "2," "3," "4," and "5" are dialed.)



- **Selectors 5 through 8: Attenuator for pseudo ring backtone to the line**

  These selectors are used to adjust the sound level of beep generated as a ring backtone in the F/T mode or as a signal during remote control operation or at the start of ICM recording.

  Setting two or more selectors to “1” produces addition of attenuation assigned to each selector.

WSW03 (PABX* mode setting)

Selector No.	Function	Setting and Specifications
1	CNG detection when sharing a modular wall socket with a telephone	0: A 1: B
2 | 4	Min. detection time length of PABX* dial tone, required for starting dialing	No. 2 3 4 0 0 0 : 50 ms 0 0 1 : 210 ms 0 1 0 : 500 ms 0 1 1 : 800 ms 1 0 0 : 900 ms 1 0 1 : 1.5 sec. 1 1 0 : 2.0 sec. 1 1 1 : 2.5 sec.
5	CNG detection when sharing a modular wall socket with a telephone	0: A 1: B
6 7	Dial tone detection in PABX*	No. 6 7 0 0 : No detection (3.5 sec. WAIT) 0 1 : No detection (5 sec. WAIT) 1 0 : No detection (7 sec. WAIT) 1 1 : Detection (Frequency only)
8	"R" key function	0: 1st dial tone detection add 1: No 1st dial tone detection

* PABX: Private automatic branch exchange

NOTE: Selectors 2 through 4 and 6 through 8 are not applicable where no PABX is installed.

- **Selectors 1 and 5: CNG detection when sharing a modular wall socket with a telephone**

  These selectors determine whether or not the equipment detects a CNG signal when a line is connected to a telephone sharing a modular wall socket with the equipment. Upon detection of CNG signals by the number of cycles specified by these selectors, the equipment interprets CNG as an effective signal and then starts FAX reception.

Selector No. 1	Selector No. 5	Cycle
0 (A)	0 (A)	0.5 cycle
0 (A)	1 (B)	1.0 cycle
1 (B)	0 (A)	1.5 cycles
1 (B)	1 (B)	2.0 cycles

- **Selectors 2 through 4: Min. detection time length of PABX dial tone, required for starting dialing**

  Upon detection of the PABX dial tone for the time length set by these selectors, the equipment starts dialing.

  These selectors are effective only when both selectors 6 and 7 are set to "1" (Detection).

- **Selectors 6 and 7: Dial tone detection in PABX**

  These selectors activate or deactivate the dial tone detection function which detects a dial tone when a line is connected to the PABX.

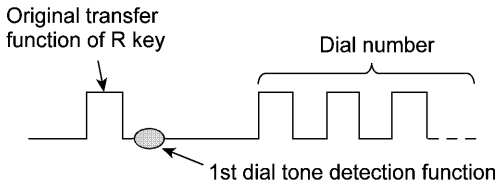
  Setting both of these selectors to "1" activates the dial tone detection function so that the equipment starts dialing upon detection of a dial tone when a line is connected.

  Other setting combinations deactivate the dial tone detection function so that the equipment starts dialing after the specified WAIT (3.5, 5.0, or 7.0 sec.) without detection of a dial tone when a line is connected.

- **Selector 8: "R" key function**

  This selector determines whether or not the 1st dial tone detection function (specified by selectors 1 through 3 of WSW05) is added to the R key.

  If this selector is set to "0," pressing the R key automatically activates the 1st dial tone detection function when the PABX and the automatic calling are selected by using the function switch. If you press the R key and a dial number in succession, the equipment will automatically carry out the 1st dial tone detection function following the original transfer function as shown below.



WSW04 (TRANSFER facility setting)

Selector No.	Function	Setting and Specifications
1	Earth function in transfer facility	0: Provided 1: Not provided
2 | 4	Not used.	
5 6	Earth time length for earth function	No. 5 6 0 0 : 200 ms 0 1 : 300 ms 1 0 : 500 ms 1 1 : 700 ms
7 8	Break time length for flash function	No. 7 8 0 0 : 80 ms 0 1 : 110 ms 1 0 : 250 ms 1 1 : 500 ms

NOTE: Selectors 1 and 5 through 8 are not applicable in those countries where no transfer facility is supported.

- **Selector 1: Earth function in transfer facility**

  This selector determines whether or not the earth function is added to the transfer setting menu to be accessed by the function switch.

- **Selectors 5 and 6: Earth time length for earth function**

  These selectors set the short-circuiting time length of the telephone line (La or Lb) to ground.

  This setting is effective only when the earth function is selected for the R key by using the function switch.

- **Selectors 7 and 8: Break time length for flash function**

  These selectors set the break time length.

  This setting is effective only when the flash function is selected for the R key by using the function switch.

WSW05 (1st dial tone and busy tone detection)

Selector No.	Function	Setting and Specifications
1 | 3	1st dial tone detection	No. 1 2 3 0 0 0 : 3.5 sec. WAIT 0 0 1 : 7.0 sec. WAIT 0 1 0 : 10.5 sec. WAIT 0 1 1 : 14.0 sec. WAIT 1 0 0 : 17.5 sec. WAIT 1 0 1 : 21.0 sec. WAIT 1 1 0 : 24.5 sec. WAIT 1 1 1 : Detection (Without WAIT)
4	Max. pause time allowable for remote ID code detection	0 : 2 seconds 1: 1 second
5 6	Busy tone detection in automatic sending mode	No. 5 6 0 0 : No detection 0 1 : Detection only after dialing 1 0 : No detection 1 1 : Detection before and after dialing
7	Busy tone detection in automatic receiving mode	0 : Yes 1: No
8	Not used.	

NOTE: Selectors 5 through 7 are not applicable in those countries where no busy tone detection is supported.

- **Selectors 1 through 3: 1st dial tone detection**

  These selectors activate or deactivate the 1st dial tone detection function which detects the 1st dial tone issued from the PSTN when a line is connected to the PSTN.

  Setting all of these selectors to "1" activates the dial tone detection function so that the equipment starts dialing upon detection of a dial tone when a line is connected. (However, in those countries which support no dial tone detection function, e.g., in the U.S.A., setting these selectors to "1" makes the equipment start dialing after a WAIT of 3.5 seconds.) For the detecting conditions of the 1st dial tone, refer to WSW07 and WSW08.

  Other setting combinations deactivate the dial tone detection function so that the equipment starts dialing after the specified WAIT (3.5, 7.0, 10.5, 14.0, 17.5, 21.0, or 24.5 seconds) without detection of a dial tone when a line is connected to the PSTN.

- **Selector 4: Max. pause time allowable for remote ID code detection**

  This selector sets the maximum pause time allowable for detecting the second digit of a remote ID code after detection of the first digit in remote reception.

  If selector 4 is set to "0" (2 seconds), for instance, only a remote ID code whose second digit is detected within 2 seconds after detection of the first digit will become effective so as to activate the remote function.

- **Selectors 5 and 6: Busy tone detection in automatic sending mode**

  These selectors determine whether or not the equipment automatically disconnects a line upon detection of a busy tone in automatic sending mode.

  Setting selector 6 to "0" ignores a busy tone so that the equipment does not disconnect the line.

  Setting selectors 5 and 6 to "0" and "1," respectively, makes the equipment detect a busy tone only after dialing and disconnect the line.

  Setting both of selectors 5 and 6 to "1" makes the equipment detect a busy tone before and after dialing and then disconnect the line.

- **Selector 7: Busy tone detection in automatic receiving mode**

  This selector determines whether or not the equipment automatically disconnects a line upon detection of a busy tone in automatic receiving mode.

WSW06 (Pause key setting and 2nd dial tone detection)

Selector No.	Function	Setting and Specifications
1 | 3	**Pause** key setting and 2nd dial tone detection	No. 1 2 3 0 0 0 : No pause 0 0 1 : 3.5 sec. WAIT 0 1 0 : 7 sec. WAIT 0 1 1 : 10.5 sec. WAIT 1 0 0 : 14 sec. WAIT 1 1 0 : 2nd dial tone detection only in pulse dialing (DP) system 1 0 1 : } 2nd dial tone detection 1 1 1 : } both in DP and push-button (PB) dialing system
4 | 6	Detection of international tone	No. 4 5 6 0 0 0 : 50 ms 0 0 1 : 210 ms 0 1 0 : 500 ms 0 1 1 : 800 ms 1 0 0 : 900 ms 1 0 1 : 1.5 sec. 1 1 0 : 2.0 sec. 1 1 1 : 2.5 sec.
7	No. of 2nd dial tone detection times	0: Once 1: Twice
8	2nd dial tone interrupt detecting time	0: 30 ms 1: 50 ms

NOTE: Selectors 4 through 8 are not applicable in those countries where no dial tone detection is supported, e.g., U.S.A.

- **Selectors 1 through 3: Pause key setting and 2nd dial tone detection**

Selectors 1	2	3	
0	0	0	No WAIT is inserted even if the **Pause** key is pressed.
0 0 0 1	0 1 1 0	1 0 1 0	If you press the **Pause** key during dialing, the facsimile equipment will insert WAIT as defined in the above table. If the **Pause** key is pressed repeatedly, the equipment inserts the specified WAIT multiplied by the number of depressions. It applies also in hook-up dialing.
1 1 1	0 1 1	1 0 1	When these selectors are set to "1, 0, 1": If you press the **Pause** key during dialing, the equipment will wait for the 2nd dial tone to be sent via the communications line. When these selectors are set to "1, 1, 0" or "1, 1, 1": If you press the **Pause** key during dialing, the equipment will first wait for the 2nd dial tone to be sent via the communications line. After that, the equipment will insert a WAIT of 3.5 seconds. If no 2nd dial tone is received within the specified time length (set by WSW08), the equipment will disconnect the line if in automatic dialing, or it will start transmitting the dial signal if given after depression of the **Pause** key in hook-up dialing. (In those countries where no dial tone detection function is supported, setting these selectors to "1, 0, 1," "1, 1, 0," or "1, 1, 1" inserts a WAIT of 3.5 seconds.)

- **Selectors 4 through 6: Detection of international tone**

  Upon detection of the 2nd dial tone for the time length specified by these selectors, the equipment starts dialing.

  This setting is effective only when the 2nd dial tone detection function is activated by selectors 1 through 3 (Setting 101, 110, or 111).

  This function does not apply in those countries where no dial tone detection function is supported.

- **Selector 7: No. of 2nd dial tone detection times**

  This selector sets the number of dial tone detection times required for starting dialing.

- **Selector 8: 2nd dial tone interrupt detecting time**

  This selector sets the allowable time length of an interrupt which should not be interpreted as an interrupt in the 2nd tone dialing.

WSW07 (Dial tone setting 1)

Selector No.	Function	Setting and Specifications
1 2	Frequency band range	No. 1 2 0 0 : Narrows by 10 Hz 0 1 : Initial value 1 X : Widens by 10 Hz
3	Line current detection	0: No 1: Yes
4 | 6	2nd dial tone detection level (Z = 600 Ω)	No. 4 5 6 0 0 0 : -21 dBm 0 0 1 : -24 dBm 0 1 0 : -27 dBm 0 1 1 : -30 dBm 1 0 0 : -33 dBm 1 0 1 : -36 dBm 1 1 0 : -39 dBm 1 1 1 : -42 dBm
7	1st dial tone interrupt detecting time	0: 30 ms 1: 50 ms
8	Not used.	

NOTE: WSW07 is not applicable in those countries where no dial tone or line current detection is supported, e.g., U.S.A.

- **Selectors 1 and 2: Frequency band range**

  These selectors set the frequency band for the 1st dial tone and the busy tone (before dialing) to be detected.

  This setting is effective only when selectors 1 through 3 of WSW05 are set to "1,1,1."

- **Selector 3: Line current detection**

  This selector determines whether or not the equipment should detect a line current before starting dialing.

- **Selectors 4 through 6: 2nd dial tone detection level**

  These selectors set the detection level of the 2nd dial tone.

- **Selector 7: 1st dial tone interrupt detecting time**

  This selector sets the allowable time length of an interrupt which should not be interpreted as an interrupt in the 1st dial tone dialing.

WSW08 (Dial tone setting 2)

Selector No.	Function	Setting and Specifications
1 | 3	1st dial tone detection time length	No. 1 2 3 0 0 0 : 50 ms 0 0 1 : 210 ms 0 1 0 : 500 ms 0 1 1 : 800 ms 1 0 0 : 900 ms 1 0 1 : 1.5 sec. 1 1 0 : 2.0 sec. 1 1 1 : 2.5 sec.
4 5	Time-out length for 1st and 2nd dial tone detection	No. 4 5 0 0 : 10 sec. 0 1 : 20 sec. 1 0 : 15 sec. 1 1 : 30 sec.
6 | 8	Detection level of 1st dial tone and busy tone before dialing	No. 6 7 8 0 0 0 : -21 dBm 0 0 1 : -24 dBm 0 1 0 : -27 dBm 0 1 1 : -30 dBm 1 0 0 : -33 dBm 1 0 1 : -36 dBm 1 1 0 : -39 dBm 1 1 1 : -42 dBm

NOTE: The WSW08 is not applicable in those countries where no dial tone detection is supported, e.g., U.S.A.

- **Selectors 1 through 3: 1st dial tone detection time length**

  Upon detection of the 1st dial tone for the time length set by these selectors, the equipment starts dialing.

  This setting is effective only when selectors 1 through 3 of WSW05 are set to "1,1,1."

- **Selectors 4 and 5: Time-out length for 1st and 2nd dial tone detection**

  These selectors set the time-out length for the 1st and 2nd dial tone detection so that the equipment waits dial tone input for the specified time length and disconnects itself from the line when no dial tone is inputted.

WSW09 (Protocol definition 1)

Selector No.	Function	Setting and Specifications
1	Frame length selection	0: 256 octets 1: 64 octets
2	Use of non-standard commands	0: Allowed 1: Prohibited
3 4	No. of retries	No. 3 4 0 0 : 4 times 0 1 : 3 times 1 0 : 2 times 1 1 : 1 time
5	T5 timer	0: 300 sec. 1: 60 sec.
6	T1 timer	0: 35 sec. 1: 40 sec.
7 8	Elapsed time for time-out control for no response from the called station in automatic sending mode	No. 7 8 0 0 : 55 sec. (USA and Canadian versions) 60 sec. (Other versions) 0 1 : 140 sec. (French versions) 70 sec. (Other versions) 1 0 : 90 sec. 1 1 : 35 sec.

NOTE: Selectors 1 through 6 are not applicable in those models which do not support ECM.

- **Selector 1: Frame length selection**

  Usually a single frame consists of 256 octets (1 octet = 8 bits). For communications lines with higher bit error rate, however, set selector 1 to "1" so that the facsimile equipment can divide a message into 64-octet frames.

  Remarks: The error correction mode (ECM) is a facsimile transmission manner in which the equipment divides a message into frames for transmission so that if any data error occurs on the transmission line, the equipment retransmits only those frames containing the error data.

- **Selector 2: Use of non-standard commands**

  If this selector is set to "0," the equipment may use non-standard commands (the machine's native-mode commands, e.g., NSF, NSC, and NSS) for communications. If it is set to "1," the equipment will use standard commands only.

- **Selectors 3 and 4: No. of retries**

  These selectors set the number of retries in each specified modem transmission speed.

- **Selector 5: T5 timer**

  This selector sets the time length for the T5 timer.

- **Selector 6: T1 timer**

  This selector sets the time length for the T1 timer.

- **Selectors 7 and 8: Elapsed time for time-out control**

  If the equipment receives no response (no G3 command) from the called terminal in automatic sending during the time set by these selectors, it disconnects the line.

WSW10 (Protocol definition 2)

Selector No.	Function		Setting and Specifications
1	Switching of DPS, following the CML ON/OFF		0: No 1: Yes
2	Time length from transmission of the last dial digit to CML ON		0: 100 ms 1: 50 ms
3	Time length from CML ON to CNG transmission		0: 2 sec. 1: 4 sec.
4	Time length from CML ON to CED transmission (except for facsimile-to-telephone switching)		0: 0.5 sec. 1: 2 sec.
5 6	No. of training retries		No. 5 6 0 0 : 1 time 0 1 : 2 times 1 0 : 3 times 1 1 : 4 times
7	Encoding system (Compression)	MR	0: Allowed 1: Not allowed
8		MMR	0: Allowed 1: Not allowed

- **Selector 1: Switching of DPS, following the CML ON/OFF**

  Setting this selector to "1" automatically switches DPS following the CML ON/OFF operation.

- **Selector 2: Time length from transmission of the last dial digit to CML ON**

  This selector sets the time length from when the equipment transmits the last dial digit until the CML relay comes on.

- **Selector 3: Time length from CML ON to CNG transmission**

  This selector sets the time length until the equipment transmits a CNG after it turns on the CML relay.

- **Selector 4: Time length from CML ON to CED transmission**

  This selector sets the time length until the equipment transmits a CED after it turns on the CML relay. This setting does not apply to switching between facsimile and telephone.

- **Selectors 5 and 6: No. of training retries**

  These selectors set the number of training retries to be repeated before automatic fallback.

- **Selectors 7 and 8: Encoding system (Compression)**

  This selector determines whether or not use of the MR/MMR coding system will be allowed.

WSW11 (Busy tone setting)

Selector No.	Function	Setting and Specifications
1 2	Frequency band range	No. 1 2 0 0 : Narrows by 10 Hz 0 1 : Initial value 1 x : Widens by 10 Hz
3	Not used.	
4	ON/OFF time length ranges (More than one setting allowed)	1: 400-600/400-600 ms
5		1: 175-440/175-440 ms
6		1: 700-800/700-800 ms
7		1: 110-410/320-550 ms
8		1: 100-660/100-660 ms

NOTE: WSW11 is not applicable in those countries where no busy tone detection is supported.

NOTE: The setting of WSW11 is effective only when selectors 5 and 6 of WSW05 are set to "0, 1" or "1, 1" (Busy tone detection).

- **Selectors 1 and 2: Frequency band range**

  These selectors set the frequency band for busy tone to be detected.

- **Selectors 4 through 8: ON/OFF time length ranges**

  These selectors set the ON and OFF time length ranges for busy tone to be detected. If more than one selector is set to "1," the ranges become wider. For example, if selectors 4 and 5 are set to "1," the ON and OFF time length ranges are from 175 to 600 ms.

WSW12 (Signal detection condition setting)

Selector No.	Function	Setting and Specifications
1 2	Min. OFF time length of calling signal (Ci)	No. 1 2 0 0 : 300 ms (in the U.S.A. and Canadian versions) 1500 ms (in other versions) 0 1 : 500 ms 1 0 : 700 ms 1 1 : 900 ms
3 4	Max. OFF time length of calling signal (Ci)	No. 3 4 0 0 : 6 sec. 0 1 : 7 sec. 1 0 : 9 sec. 1 1 : 11 sec.
5 6	Detecting time setting	No. 5 6 0 0 : 800 ms (1000 ms*) 0 1 : 200 ms 1 0 : 250 ms 1 1 : 150 ms
7	Delay	0: Yes 1: No
8	Not used.	

*1000 ms in Chinese versions.

- **Selectors 1 through 4: Min. and max. OFF time length of calling signal (Ci)**

  If the equipment detects the OFF state of calling signal (Ci) for a time length which is greater than the value set by selectors 1 and 2 and less than the value set by selectors 3 and 4, it interprets the Ci signal as OFF.

- **Selectors 5 and 6: Detecting time setting**

  These selectors set the time length required to make the equipment acknowledge itself to be called. That is, if the equipment continuously detects calling signals with the frequency set by selectors 1 through 4 of WSW14 during the time length set by these selectors 5 and 6, it acknowledges the call.

- **Selector 7: Delay**

  Setting this selector to "0" allows the equipment to insert a 900 ms WAIT after acknowledgment of the call until the equipment turns on the CML relay to start receiving operation.

WSW13 (Modem setting)

Selector No.	Function	Setting and Specifications
1 2	Cable equalizer	No. 1 2 0 0 : 0 km 0 1 : 0 km 1 0 : 7.2 km 1 1 : 7.2 km
3 4	Reception level	No. 3 4 0 0 : -43 dBm 0 1 : -47 dBm 1 0 : -49 dBm 1 1 : -51 dBm
5 | 8	Modem attenuator	0: 0 dB 1: 8 dB 0: 0 dB 1: 4 dB 0: 0 dB 1: 2 dB 0: 0 dB 1: 1 dB

The modem should be adjusted according to the user's line conditions.

- **Selectors 1 and 2: Cable equalizer**

  These selectors are used to improve the pass-band characteristics of analogue signals on a line. (Attenuation in the high-band frequency is greater than in the low-band frequency.)

  Set these selectors according to the distance from the telephone switchboard to the facsimile equipment.

- **Selectors 3 and 4: Reception level**

  These selectors set the optimum receive signal level.

- **Selectors 5 through 8: Modem attenuator**

  These selectors are used to adjust the transmitting level of the modem when the reception level at the remote station is improper due to line loss. This function applies for G3 protocol signals.

  Setting two or more selectors to "1" produces addition of attenuation assigned to each selector.

  This setting will be limited if selector 8 of WSW23 is set to "0."

WSW14 (AUTO ANS facility setting)

Selector No.	Function	Setting and Specifications
1 2	Frequency band selection (Lower limit)	No. 1 2 0 0 : 13 Hz 0 1 : 15 Hz 1 0 : 23 Hz 1 1 : 20 Hz
3 4	Frequency band selection (Upper limit)	No. 3 4 0 0 : 30 Hz 0 1 : 55 Hz 1 X : 70 Hz
5 | 8	No. of rings in AUTO ANS mode	No. 5 6 7 8 0 0 0 0 : Fixed to once 0 0 0 1 : Fixed to 2 times 0 0 1 0 : Fixed to 3 times 0 0 1 1 : Fixed to 4 times 0 1 0 0 : 1 to 2 times 0 1 0 1 : 1 to 3 times 0 1 1 0 : 1 to 4 times 0 1 1 1 : 1 to 5 times 1 0 0 0 : 2 to 3 times 1 0 0 1 : 2 to 4 times 1 0 1 0 : 2 to 5 times 1 0 1 1 : 2 to 6 times 1 1 0 0 : 1 to 10 times 1 1 0 1 : 2 to 10 times 1 1 1 0 : 3 to 5 times 1 1 1 1 : 4 to 10 times

- **Selectors 1 through 4: Frequency band selection**

  These selectors are used to select the frequency band of calling signals for activating the AUTO ANS facility.

  In the French versions, if the user sets the PBX to OFF from the control panel, the setting made by selectors 1 and 2 will take no effect and the frequency's lower limit will be fixed to 32 Hz. (Even if the setting made by these selectors does not apply, it will be printed on the configuration list.)

- **Selectors 5 through 8: No. of rings in AUTO ANS mode**

  These selectors set the number of rings to initiate the AUTO ANS facility.

WSW15 (REDIAL facility setting)

Selector No.	Function	Setting and Specifications
1 2	Selection of redial interval	No. 1 2 0 0 : 5 minutes 0 1 : 1 minute 1 0 : 2 minutes 1 1 : 3 minutes
3 | 6	No. of redialings	No. 3 4 5 6 0 0 0 0 : 16 times 0 0 0 1 : 1 times 0 0 1 0 : 2 times 0 0 1 1 : 3 times | | 1 1 1 1 : 15 times
7 8	Not used.	

- **Selectors 1 through 6: Selection of redial interval and No. of redialings**

  The equipment redials by the number of times set by selectors 3 through 6 at intervals set by selectors 1 and 2.

WSW16 (Function setting 1)

Selector No.	Function	Setting and Specifications
1	Not used.	
2	CCITT superfine recommendation	0: OFF 1: ON
3 | 6	Not used.	
7	Max. document length limitation	0: 400 cm 1: 90 cm
8	**Stop** key pressed during reception	0: Not functional 1: Functional

- **Selector 2: CCITT superfine recommendation**

  If this selector is set to "1," the equipment communicates in CCITT recommended superfine mode (15.4 lines/mm). If it is set to "0," it communicates in native superfine mode.

- **Selector 7: Max. document length limitation**

  This selector is used to select the maximum length of a document to be sent.

- **Selector 8: Stop key pressed during reception**

  If this selector is set to "1," pressing the **Stop** key can stop the current receiving operation. The received data will be lost.

WSW17 (Function setting 2)

Selector No.	Function	Setting and Specifications
1 2	Off-hook alarm	No. 1 2 0 0 : No alarm 0 1 : Always valid 1 X : Valid except when 'call reservation' is selected.
3	Power failure report output	0: ON 1: OFF
4	Calendar clock/prompt alternate display	0: No 1: Yes
5	Calendar clock type	0: U.S.A. type 1: European type
6	Not used.	
7	Non-ring reception	0: OFF 1: ON
8	Not used.	

- **Selectors 1 and 2: Off-hook alarm**

  These selectors activate or deactivate the alarm function which sounds an alarm when the communication is completed with the handset being off the hook.

- **Selector 3: Power failure report output**

  This selector determines whether or not the equipment outputs a power failure report when the power comes back on.

- **Selector 4: Calendar clock/prompt alternate display**

  If this selector is set to "1," the calendar clock and the prompt "INSERT DOCUMENT" appear alternately on the LCD while the equipment is on standby; if it is set to "0," only the calendar clock appears.

- **Selector 5: Calendar clock type**

  If this selector is set to "0" (USA), the MM/DD/YY hh:mm format applies; if it is set to "1" (Europe), the DD/MM/YY hh:mm format applies: DD is the day, MM is the month, YY is the last two digits of the year, hh is the hour, and mm is the minute.

- **Selector 7: Non-ring reception**

  Setting this selector to "1" makes the equipment receive calls without ringer sound if the ring delay is set to 0.

WSW18 (Function setting 3)

Selector No.	Function	Setting and Specifications
1	Not used.	
2 3	Detection enabled time for CNG and no tone	No. 2 3 0 0 : 40 sec. 0 1 : 0 sec. (No detection) 1 0 : 5 sec. 1 1 : 80 sec.
4 5	Not used.	
6	Registration of station ID	0: Permitted 1: Prohibited
7 8	Tone sound monitoring	No. 7 8 0 X : No monitoring 1 0 : Up to phase B at the calling station only 1 1 : All transmission phases both at the calling and called stations

- **Selectors 2 and 3: Detection enabled time for CNG and no tone**

  After the line is connected via the external telephone or by picking up the handset of the facsimile equipment, the equipment can detect a CNG signal or no tone for the time length specified by these selectors. The setting specified by these selectors becomes effective only when selector 8 of WSW20 is set to "1."

- **Selector 6: Registration of station ID**

  Setting this selector to "0" permits the registration of station ID for Austrian and Czech versions.

- **Selectors 7 and 8: Tone sound monitoring**

  These selectors set monitoring specifications of the tone sound inputted from the line.

WSW19 (Transmission speed setting)

Selector No.	Function	Setting and Specifications
1 | 3	First transmission speed choice for fallback	No. 1 2 3 / No. 4 5 6 0 0 0 : 2,400 bps 0 0 1 : 4,800 bps 0 1 0 : 7,200 bps 0 1 1 : 9,600 bps 1 0 0 : 12,000 bps 1 0 1 : 14,400 bps 1 1 0 : 14,400 bps 1 1 1 : 14,400 bps
4 | 6	Last transmission speed choice for fallback	
7	Not used.	
8	V. 17 mode	0: Permitted 1: Prohibited

- **Selectors 1 through 6: First and last choices of transmission speed for fallback**

  These selectors are used to set the MODEM speed range. With the first transmission speed choice specified by selectors 1 through 3, the equipment attempts to synchronize the data transmission via the MODEM. If the synchronization fails, the equipment automatically steps down to the next lowest speed and attempts to synchronize the data transmission again. The equipment repeats this sequence while stepping down the transmission speed to the last choice specified by selectors 4 through 6.

  If the MODEM always falls back to a low transmission speed (e.g., 4,800 bps), set the first transmission speed choice to the lower one (e.g., modify it from 12,000 bps to 7,200 bps) in order to deactivate the high-speed MODEM function and reduce the training time for shorter transmission time.

  Generally, to save the transmission time, set the last transmission speed choice to a higher one.

WSW20 (Overseas communications mode setting)

Selector No.	Function	Setting and Specifications
1	EP* tone prefix	0: OFF 1: ON
2	Overseas communications mode (Reception)	0: 2100 Hz 1: 1100 Hz
3	Overseas communications mode (Transmission)	0: OFF 1: Ignores DIS once.
4 5	Min. time length from reception of CFR to start of transmission of video signals	No. 4 5 0 0 : 100 ms 0 1 : 200 ms 1 0 : 300 ms 1 1 : 400 ms
6 7	Chattering elimination for CNG detection	No. 6 7 0 0 : A (During CNG ON and OFF) 0 1 : B (During CNG OFF only) 1 X : C (No elimination)
8	CNG detection on/off	0: OFF 1: ON

* EP: Echo protection

- **Selector 1: EP tone prefix**

  Setting this selector to "1" makes the equipment transmit a 1700 Hz echo protection (EP) tone immediately preceding training in V.29 modulation system to prevent omission of training signals.

  Prefixing an EP tone is effective when the equipment fails to transmit at the V.29 modem speed and always has to fall back to 4800 bps transmission.

- **Selectors 2 and 3: Overseas communications mode**

  These selectors should be used if the facsimile equipment malfunctions in overseas communications. According to the communications error state, select the signal specifications.

  Setting selector 2 to "1" allows the equipment to use 1100 Hz CED signal instead of 2100 Hz in receiving operation. This prevents malfunctions resulting from echoes, since the 1100 Hz signal does not disable the echo suppressor (ES) while the 2100 Hz signal does.

  Setting selector 3 to "1" allows the equipment to ignore a DIS signal sent from the called station once in sending operation. This operation suppresses echoes since the first DIS signal immediately follows a 2100 Hz CED (which disables the ES) so that it is likely to be affected by echoes in the disabled ES state. However, such a disabled ES state will be removed soon so that the second and the following DIS signals are not susceptible to data distortion due to echoes. Note that some models when called may cause error by receiving a self-outputted DIS.

- **Selectors 8: CNG detection on/off**

  If this selector is set to "1," the equipment detects a CNG signal according to the condition preset by selectors 2 and 3 of WSW18 after a line is connected. If it is set to "0," the equipment detects a CNG signal as long as the line is connected.

WSW21 (TAD setting 1)

Selector No.	Function	Setting and Specifications
1 | 7	Not used.	
8	Erasure of message stored in the memory after the message transfer	0: Yes 1: No

- **Selector 8: Erasure of message stored in the memory after the message transfer**

  Setting this selector to "0" will erase the message recorded in the memory after the document retrieval feature transfers the message.

WSW22 (ECM and copy resolution setting)

Selector No.	Function	Setting and Specifications
1	ECM* in sending	0: ON 1: OFF
2	ECM* in receiving	0: ON 1: OFF
3	Not used.	
4	Copy resolution	0: Fine 1: Superfine
5 | 8	Acceptable TCF bit error rate (%) (Only at 4800 bps)	0: 0% 1: 8% 0: 0% 1: 4% 0: 0% 1: 2% 0: 0% 1: 1%

* ECM: Error correction mode

NOTE: Selectors 5 through 8 are applicable to the Chinese, Taiwanese and Asian versions only.

- **Selector 4: Copy resolution**

  This selector determines whether resolution for multi-copy should be Fine or Superfine.

- **Selectors 5 through 8: Acceptable TCF bit error rate (%)**

  Setting two or more selectors to "1" produces addition of percent assigned to each selector. If you set selectors 7 and 8 to "1," the acceptable TCF bit error rate will be 3%.

WSW23 (Communications setting)

Selector No.	Function	Setting and Specifications
1	Starting point of training check (TCF)	0: From the head of a series of zeros 1: From any arbitrary point
2 3	Allowable training error rate	No. 2 3 0 0 : 0% 0 1 : 0.5% 1 0 : 1% 1 1 : 2%
4 5	Decoding error rate for transmission of RTN	No. 4 5 0 0 : 16% 0 1 : 14% 1 0 : 10% 1 1 : 8%
6	Issue of RTN at the occurrence of a pagination error	0: Yes 1: No
7	Not used.	
8	Limitation of attenuation level	0: Yes 1: No

NOTE: Selector 8 is not applicable to the French versions.

- **Selector 1: Starting point of training check (TCF)**

  At the training phase of receiving operation, the called station detects for 1.0 second a training check (TCF) command, a series of zeros which is sent from the calling station for 1.5 seconds to verify training and give the first indication of the acceptability of the line.

  This selector sets the starting point from which the called station should start counting those zeros. If this selector is set to "0," the called station starts counting zeros 100 ms after the head of a series of zeros is detected.

  If it is set to "1," the called station starts counting zeros upon detection of 10-ms successive zeros 50 ms after the head of a series of zeros is detected. In this case, if the detection of 10-ms successive zeros is too late, the data counting period will become less than 1.0 second, making the called station judge the line condition unacceptable.

- **Selectors 2 and 3: Allowable training error rate**

  The called station checks a series of zeros gathered in training (as described in Selector 1) according to the allowable training error rate set by these selectors. If the called station judges the line condition to be accepted, it responds with CFR; if not, it responds with FTT.

- **Selectors 4 and 5: Decoding error rate for transmission of RTN**

  The facsimile equipment checks the actual decoding errors and then transmits an RTN according to the decoding error rate (Number of lines containing an error per page ÷ Total number of lines per page) set by these selectors.

- **Selector 6: Issue of RTN at the occurrence of a pagination error**

  If this selector is set to "0," the facsimile equipment transmits an RTN when a pagination error occurs due to recording lag relative to receiving.

- **Selector 8: Limitation of attenuation level**

  Setting this selector to "0" limits the transmitting level of the modem to 10 dB.

  This setting has priority over the settings selected by WSW02 (selectors 5 through 8) and WSW13 (selectors 5 through 8).

WSW24 (TAD setting 2)

Selector No.	Function	Setting and Specifications
1 | 8	Not used.	

WSW25 (TAD setting 3)

Selector No.	Function	Setting and Specifications
1 | 4	Not used.	
5 | 7	Pause between paging number and PIN	No. 5 6 7 0 0 0 : 2 sec. 0 0 1 : 4 sec. 0 1 0 : 6 sec. 0 1 1 : 8 sec. 1 0 0 : 10 sec. 1 0 1 : 12 sec. 1 1 0 : 14 sec. 1 1 1 : 16 sec.
8	Not used.	

NOTE: Selectors 5 through 7 are applicable only to the U.S.A. versions.

- **Selectors 5 through 7: Pause between paging number and PIN**

  These selectors set the pause time between a telephone number being paged and PIN (private identification number) for the paging feature.

WSW26 (Function setting 4)

Selector No.	Function	Setting and Specifications
1 | 3	Not used.	
4 5	No. of CNG cycles to be detected (when the line is connected via the external telephone except in the external TAD mode)	No. 4 5 0 0 : 0.5 (A) 0 1 : 1 (B) 1 0 : 1.5 (C) 1 1 : 2 (D)
6 | 8	Not used.	

- **Selectors 4 and 5: No. of CNG cycles to be detected**

  The equipment interprets a CNG as an effective signal if it detects a CNG signal by the number of cycles specified by these selectors when the line is connected via the external telephone except in the external TAD mode.

WSW27 (Function setting 5)

Selector No.	Function	Setting and Specifications
1	Not used.	
2	Ringer OFF setting	0: Yes 1: No
3	Not used.	
4	Detection of distinctive ringing pattern	0: No 1: Yes
5 | 8	Not used.	

NOTE: Selector 4 is applicable only to the U.S.A. versions

- **Selector 2: Ringer OFF setting**

  This selector determines whether or not the ringer can be set to OFF.

- **Selector 4: Detection of distinctive ringing pattern**

  If this selector is set to "1," the equipment detects only the number of rings; if it is set to "0," the equipment detects the number of rings and the ringing time length to compare the detected ringing pattern with the registered distinctive one.

WSW28 (Function setting 6)

Selector No.	Function	Setting and Specifications
1 | 3	Transmission level of DTMF high-band frequency signal	No. 1 2 3 0 0 0 : 0 dB 0 0 1 : +1 dB 0 1 0 : +2 dB 0 1 1 : +3 dB 1 0 0 : 0 dB 1 0 1 : -1 dB 1 1 0 : -2 dB 1 1 1 : -3 dB
4 | 6	Transmission level of DTMF low-band frequency signal	No. 4 5 6 0 0 0 : 0 dB 0 0 1 : +1 dB 0 1 0 : +2 dB 0 1 1 : +3 dB 1 0 0 : 0 dB 1 0 1 : -1 dB 1 1 0 : -2 dB 1 1 1 : -3 dB
7	Current available resolution in receiving	0: Sends the current resolution statement 1: Switches the resolution to the lower level
8	Not used.	

- **Selectors 1 through 6: Transmission level of DTMF high-/low-band frequency signal**

  These selectors are intended for the manufacturer who tests the equipment for the Standard. Never access them.

- **Selector 7: Current available resolution in receiving**

  If this selector is set to "0," the equipment will send the resolution statement to the calling station, telling the maximum capacity of the equipment independent of the current memory space available.

  If this selector is set to "1," the equipment automatically switches the resolution to the lower level (superfine → fine → standard) if the memory space is insufficient to receive data at the designated resolution.

WSW29 (Function setting 7)

Selector No.	Function	Setting and Specifications
1 | 6	Not used.	
7	Impedance switching control in pulse dialing	0: OFF 1: ON
8	Beep when the memory area for the activity report becomes full	0: No 1: Yes

NOTE: Selector 8 is applicable to the European version only.

- **Selector 8: Beep when the memory area for the activity report becomes full**

  If this selector is set to "1," the equipment will beep when the memory area for the activity report becomes full (as well as displaying a message on the LCD, prompting the output of the activity report).

WSW30 (Function setting 8)

Selector No.	Function	Setting and Specifications
1 | 8	Not used.	

WSW31 (Function setting 9)

Selector No.	Function	Setting and Specifications
1	Not used.	
2	Default reduction rate for failure of automatic reduction during recording	0: 100% 1: 70%
3	Backing up received data	0: Yes 1: No
4	Black ink empty sensor	0: Yes 1: No
5	Minimum short-OFF duration in distinctive ringing	0: 130 ms 1: 90 ms
6 | 8	Not used.	

NOTE: Selector 5 is applicable only to the U.S.A. versions.

- **Selector 2: Default reduction rate for failure of automatic reduction during recording**

  This selector sets the default reduction rate to be applied if the automatic reduction function fails to record one-page data sent from the calling station in a single page of the current recording paper.

  If it is set to "0," the equipment records one-page data at full size (100%) without reduction; if it is set to "1," the equipment records it at 70% size.

- **Selector 3: Backing up received data**

  This selector determines whether the equipment backs up received data into the DRAM (just as in the backup operation to be performed if a paper-empty error, ink-empty error or cover-open error occurs). Only the data received at the latest five transmission sequences may be backed up. To print out the backed-up data, press the **Help** key while holding down the **Shift** key, or carry out purging operation.

- **Selector 5 Minimum short-OFF duration in distinctive ringing**

  The ringer pattern consists of short and long rings, e.g., short-short-long rings. This selector sets the minimum OFF duration following a short ring in order to avoid missing ringer tones in distinctive ringing.

  If this selector is set to "1," when the short-OFF duration is a minimum of 90 ms long, then the equipment will interpret the short-OFF as OFF.

WSW32 (Function setting 10)

Selector No.	Function	Setting and Specifications
1 | 4	Not used.	
5 6	Default resolution	No. 5 6 0 0 : Standard 0 1 : Fine 1 0 : Super fine 1 1 : Photo
7 8	Default contrast	No. 7 8 0 X : Automatic 1 0 : Super light 1 1 : Super dark

- **Selectors 5 and 6: Default resolution**

  These selectors set the default resolution which applies when the equipment is powered up or completes a transaction.

- **Selectors 7 and 8: Default contrast**

  These selectors set the default contrast which applies when the equipment is powered up or completes a transaction.

WSW33 (Function setting 11)

Selector No.	Function	Setting and Specifications
1 | 3	Not used.	
4 5	FAX receiving speed to be kept within the transmission speed limit to the PC	No. 4 5 0 0 : 14,400 bps 0 1 : 12,000 bps 1 0 : 9,600 bps 1 1 : 7,200 bps
6 | 8	Not used.	

- **Selectors 4 and 5: FAX receiving speed to be kept within the transmission speed limit to the PC**

  To transmit FAX data being received from other facsimile equipment to the connected PC, you may need to keep the FAX receiving speed within the transmission speed limit to the PC. In an initial negotiation sequence for transmission, the equipment responds to the calling station with the allowable FAX receiving speed specified by these selectors.

WSW34 (Function setting 12)

Selector No.	Function	Setting and Specifications
1 | 3	Not used.	
4 5	No. of CNG cycles to be detected (when the line is connected via the external telephone in the external TAD mode)	No. 4 5 0 0 : 0.5 (A) 0 1 : 1 (B) 1 0 : 1.5 (C) 1 1 : 2 (D)
6 7	Number of DTMF tone signals for inhibiting the detection of CNG during external TAD operation	No. 6 7 0 0 : 3 0 1 : 2 1 0 : 1 1 1 : OFF
8	Not used.	

- **Selectors 4 and 5: No. of CNG cycles to be detected**

  The equipment interprets a CNG as an effective signal if it detects a CNG signal by the number of cycles specified by these selectors when the line is connected via the external telephone in the external TAD mode.

- **Selectors 6 and 7: Number of DTMF tone signals for inhibiting the detection of CNG during external TAD operation**

  If the equipment receives this specified number of DTMF tone signals during external TAD operation, it will not detect CNG afterwards.

  If these selectors are set to "1, 1," the CNG detection will not be inhibited.

WSW35 (Function setting 13)

Selector No.	Function	Setting and Specifications
1 | 8	Not used.	

WSW36 (Function setting 14)

Selector No.	Function	Setting and Specifications
1	ECP mode*	0: ON 1: OFF
2	Recovery from Inactive PC Interface	0: Disabled 1: Enabled
3	PC Power-off Recognition Time	0: Normal 1: Long
4 5	Not used.	
6 | 8	Lower limit of frequency to be ignored after detection of calling signals (Ci)	No. 6 7 8 0 0 0 : 0 (Not ignored) 0 0 1 : 4 (448 Hz) 0 1 0 : 8 (244 Hz) 0 1 1 : 12 (162 Hz) 1 0 0 : 16 (122 Hz) 1 0 1 : 20 (97 Hz) 1 1 0 : 24 (81 Hz) 1 1 1 : 28 (69 Hz)

*ECP (Enhanced Capabilities Port)

- **Selector 1: ECP mode**

  The ECP mode enhances the normal bidirectional communications between the facsimile equipment and the connected PC for higher transmission speed.

- **Selector 2: Recovery from Inactive PC Interface**

  If the facsimile equipment recognizes via the STB signal line that the connected PC is powered off, it will turn the PC interface outputs Low to protect the PC from hazards that could be caused by weak electric current accidentally flown from the equipment.

  This selector determines whether the equipment should recover from the inactive PC interface to normal interfacing state upon receipt of data from the PC.

- **Selector 3: PC Power-off Recognition Time**

  This selector sets the time length from when the equipment detects the PC powered off until it recognizes the detected state as power-off.

  If selector 2 is set to "0," it is recommended that selector 3 be set to "1"; otherwise, the equipment may mistakenly detect PC powered off.

- **Selectors 6 through 8: Lower limit of frequency to be ignored after detection of calling signals (Ci)**

  At the start of reception, if the equipment detects the frequency of calling signals (Ci) specified by selectors 1 through 4 of WSW14, it will start the ringer sounding. When doing so, the equipment may fail to detect the calling signals normally due to noises superimposed at the time of reception. To prevent it, use selectors 6 through 8 of WSW36.

  If the equipment detects higher frequencies than the lower limit specified by these selectors, it will regard them as noise and interpret that detecting state as being normal, allowing the ringer to keep sounding (until the equipment starts automatic reception of FAX data if in the FAX mode, according to the preset number of ringers).

[B] Printout of firmware switch data

n Function

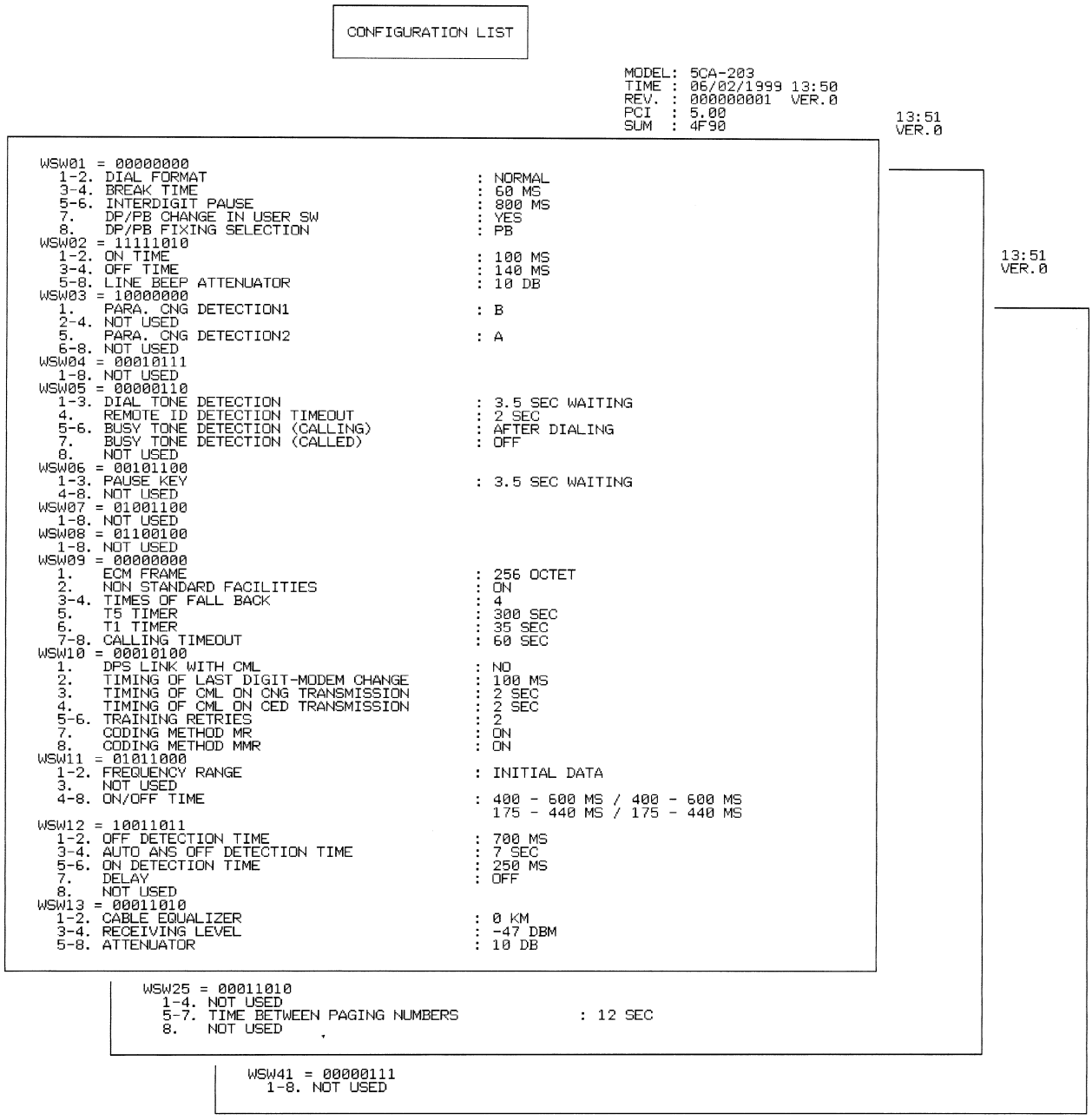
The equipment prints out the setting items and contents specified by the firmware switches.

n Operating Procedure

(1) Press the **1** key twice in the initial stage of the maintenance mode.
The "PRINTING" will appear on the LCD.

(2) The equipment prints out the configuration list as shown in the figure below.

(3) Upon completion of printing, the equipment returns to the initial stage of the maintenance mode.


CONFIGURATION LIST
MODEL: 5CA-203
TIME : 06/02/1999 13:50
REV. : 000000001 VER.0
PCI : 5.00
SUM : 4F90
13:51
VER.0
WSW01 = 00000000
1-2. DIAL FORMAT : NORMAL
3-4. BREAK TIME : 60 MS
5-6. INTERDIGIT PAUSE : 800 MS
7. DP/PB CHANGE IN USER SW : YES
8. DP/PB FIXING SELECTION : PB
WSW02 = 11111010
1-2. ON TIME : 100 MS
3-4. OFF TIME : 140 MS
5-8. LINE BEEP ATTENUATOR : 10 DB
WSW03 = 10000000
1. PARA. CNG DETECTION1 : B
2-4. NOT USED
5. PARA. CNG DETECTION2 : A
6-8. NOT USED
WSW04 = 00010111
1-8. NOT USED
WSW05 = 00000110
1-3. DIAL TONE DETECTION : 3.5 SEC WAITING
4. REMOTE ID DETECTION TIMEOUT : 2 SEC
5-6. BUSY TONE DETECTION (CALLING) : AFTER DIALING
7. BUSY TONE DETECTION (CALLED) : OFF
8. NOT USED
WSW06 = 00101100
1-3. PAUSE KEY : 3.5 SEC WAITING
4-8. NOT USED
WSW07 = 01001100
1-8. NOT USED
WSW08 = 01100100
1-8. NOT USED
WSW09 = 00000000
1. ECM FRAME : 256 OCTET
2. NON STANDARD FACILITIES : ON
3-4. TIMES OF FALL BACK : 4
5. T5 TIMER : 300 SEC
6. T1 TIMER : 35 SEC
7-8. CALLING TIMEOUT : 60 SEC
WSW10 = 00010100
1. DPS LINK WITH CML : NO
2. TIMING OF LAST DIGIT-MODEM CHANGE : 100 MS
3. TIMING OF CML ON CNG TRANSMISSION : 2 SEC
4. TIMING OF CML ON CED TRANSMISSION : 2 SEC
5-6. TRAINING RETRIES : 2
7. CODING METHOD MR : ON
8. CODING METHOD MMR : ON
WSW11 = 01011000
1-2. FREQUENCY RANGE : INITIAL DATA
3. NOT USED
4-8. ON/OFF TIME : 400 - 600 MS / 400 - 600 MS
175 - 440 MS / 175 - 440 MS
WSW12 = 10011011
1-2. OFF DETECTION TIME : 700 MS
3-4. AUTO ANS OFF DETECTION TIME : 7 SEC
5-6. ON DETECTION TIME : 250 MS
7. DELAY : OFF
8. NOT USED
WSW13 = 00011010
1-2. CABLE EQUALIZER : 0 KM
3-4. RECEIVING LEVEL : -47 DBM
5-8. ATTENUATOR : 10 DB
13:51
VER.0
WSW25 = 00011010
1-4. NOT USED
5-7. TIME BETWEEN PAGING NUMBERS : 12 SEC
8. NOT USED
WSW41 = 00000111
1-8. NOT USED

Configuration List

3.6 Operational Check of LCD

n Function

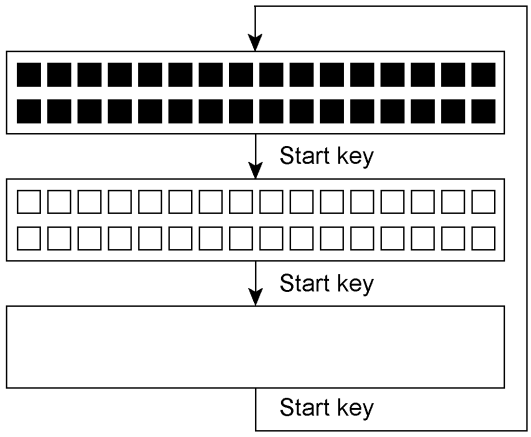
This function allows you to check whether the LCD on the control panel works normally.

n Operating Procedure

(1) Press the **1** and **2** keys in this order in the initial stage of the maintenance mode.

The LCD shows

(2) Press the **Start** key. Each time you press the **Start** key, the LCD cycles through the displays shown at right.



(3) Press the **Stop** key in any process of the above display cycle. The equipment beeps for one second and returns to the initial stage of the maintenance mode.

3.7 Operational Check of Control Panel PCB

n Function

This function allows you to check the control panel PCB for normal operation.

n Operating Procedure

(1) Press the **1** and **3** keys in this order in the initial stage of the maintenance mode.

The "00 " will appear on the LCD.

(2) Press the keys and buttons in the order designated in the illustration shown below.

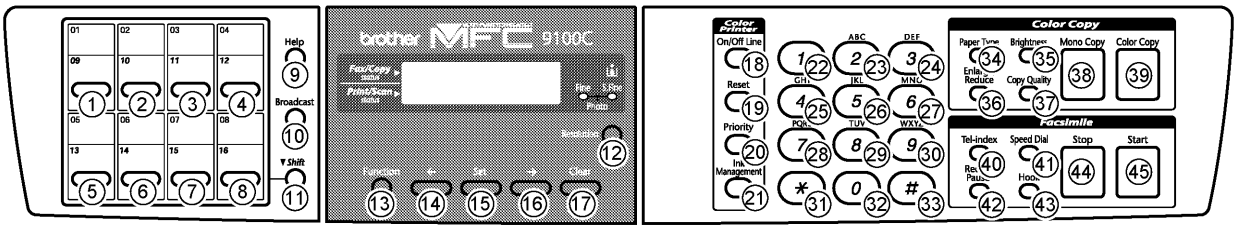
The LCD shows the corresponding number in decimal notation each time a key or button is pressed. Check that the displayed number is correct by referring to the illustration below.

If a key or button is pressed out of order, the equipment beeps and displays the "INVALID OPERATE" on the LCD. To return to the status ready to accept key & button entry for operational check, press the **Stop** key.

(3) After the last number key or button is pressed, the equipment beeps and returns to the initial stage of the maintenance mode.

To terminate this operation, press the **Stop** key. The equipment returns to the initial stage of the maintenance mode.

MFC9100C/MFC760



Key & Button Entry Order

3.8 Sensor Operational Check

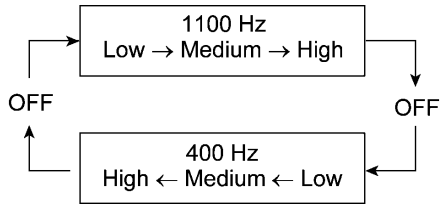
n Function

This function allows you to check whether the following 14 sensors operate correctly.

- Document front sensor
- Document rear sensor
- Cassette sensor
- Cover sensor
- Registration sensor
- Paper width sensor
- Paper ejection sensor
- Purge cam HP switch
- CCD HP sensor
- Head property EEPROM
- Black ink cartridge sensor
- Yellow ink cartridge sensor
- Cyan ink cartridge sensor
- Magenta ink cartridge sensor

n Operating Procedure

(1) Press the **3** and **2** keys in this order in the initial stage of the maintenance mode. The equipment beeps 1100 Hz and 400 Hz tones cyclically through the following volumes for testing the speaker.



NOTE: To stop beeping, press the **Function** key (American models) or **Menu** key (European models).

If the sensing status are as listed below, the LCD will show "FRRET1##CVRGWD##" and "JMPGFHHDIKIYICIM," which can be switched by pressing the **Start** key. (## means that the area is not used.)

Given below is the relationship between the LCD indication, sensor name and sensor status.

LCD	Sensors	Sensing status
FR	Document front sensor	No document detected.
RE	Document rear sensor	No document detected.
T1	Cassette sensor	Paper cassette loaded.
CV	Cover sensor	Scanner unit closed.
RG	Registration sensor	No recording paper detected.
WD	Paper width sensor	No recording paper (A4 or wider) detected.
JM	Paper ejection sensor	No recording paper detected.
PG	Purge cam HP switch	Purge cam placed in the home position.
FH	CCD HP sensor	CCD unit placed in the home position.
HD	Head property EEPROM	Head (rank) detected.
IK	Black ink cartridge sensor	Black ink cartridge loaded.
IY	Yellow ink cartridge sensor	Yellow ink cartridge loaded.
IC	Cyan ink cartridge sensor	Cyan ink cartridge loaded.
IM	Magenta ink cartridge sensor	Magenta ink cartridge loaded.

(2) Change the detecting conditions and check that the displayed letters disappear. For example, insert a document through the document front sensor and check that the "FR" disappears.

(3) To stop this operation and return the equipment to the initial stage of the maintenance mode, press the **Stop** key.

3.9 CCD Scanner Area Setting

n Function

The equipment sets the CCD scanner area and stores it into the EEPROM.

n Operating Procedure

(1) Press the **5** key twice in the initial stage of the maintenance mode.

The "SCANNER AREA SET," "BLACK LEVEL INIT," and "WHITE LEVEL INIT" will appear on the LCD in this order.

The equipment checks and sets the area to be scanned.

If no error is noted, the equipment returns to the initial stage of the maintenance mode.

If any error is noted, the "SCANNER ERROR" will appear on the LCD. To return the equipment to the initial stage of the maintenance mode, press the **Stop** key.

3.10 Setting the Sensing Reference Levels of Black Ink Empty Sensor

n Function

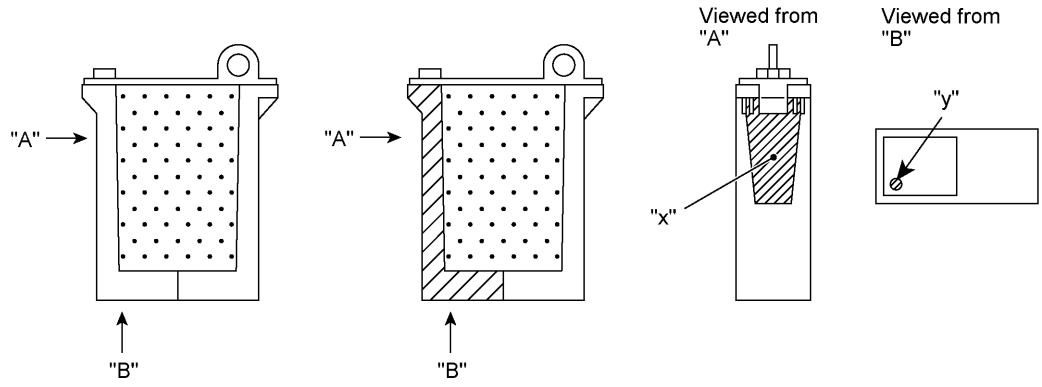
This function allows you to set the sensing reference levels of the black ink empty sensor which apply when the controller judges whether there is ink in the black ink cartridge. The setting procedure requires two types of reference cartridges—an empty cartridge and foam-empty cartridge.

NOTE: If you replace the carriage ASSY, carry out this procedure.

n Operating Procedure

Handling notes for reference cartridges: Shown below are empty cartridge and foam-empty cartridge to be used for setting the sensing reference levels of the black ink empty sensor. Do not touch section "x" or "y."

If any dust or dirt is found on "x" or "y," wipe it off with a soft cloth. If "x" is scratched, replace the cartridge with a new one. Using such a scratched cartridge will fail to set correct reference levels. After completion of the setting procedure, store those cartridges in the container.



Empty cartridge Foam-empty cartridge

(1) Press the **5** and **7** keys in this order in the initial stage of the maintenance mode.

The LCD shows the "BKEMP TEST START" and "REMOVE ALL CART!" alternately.

(2) Open the scanner unit.

The carriage automatically moves left to the ink cartridge replacement position.

(3) Remove all ink cartridges, one at a time.

(4) Close the scanner unit.

(5) Press the **Stop** key to return to the initial stage of the maintenance mode.

(6) Press the **5** and **7** keys in this order again.

The LCD shows the "BKEMP TEST START" and "SET EMPTY CART!" alternately.

(7) Open the scanner unit.

The carriage automatically moves left to the ink cartridge replacement position.

(8) Set the empty cartridge into the black ink cartridge position.

(9) Close the scanner unit.

The equipment shows the "-BKEMP CHECK-" and starts setting the sensing level for the empty cartridge.

If the equipment completes setting normally, the "SET F.EMP CART!!" appears. If it fails, the "BKEMP EMPTY:NG!" appears, so press the **Stop** key and go back to step (1).

(10) Open the scanner unit.

The carriage automatically moves left to the ink cartridge replacement position.

(11) Remove the empty cartridge and set the foam-empty cartridge into the black ink cartridge position instead.

(12) Close the scanner unit.

The equipment shows the "-BKEMP CHECK-" and starts setting the sensing level for the foam-empty cartridge.

If the equipment normally completes setting, it beeps and displays the "SET F.EMP CART!!." Two seconds later, the "SET ALL NEW CART" appears. If it fails, the "BKEMP F.EMP:NG!" appears, so press the **Stop** key and go back to step (1).

(13) Open the scanner unit and remove the foam-empty cartridge.

(14) Load all ink cartridges removed in step (3) back into place.

(15) Close the scanner unit.

The equipment shows the "PURGE TYPE 1235?" on the LCD.

1: Ordinary purging
2: Double purging
3: Triple purging
5: Ink priming

(16) Choose the desired type of purging operation by using the **1**, **2**, **3**, or **5** key. (Usually choose "3: Triple purging.")

The equipment automatically carries out purging for all colors of ink and then aging of the carriage (to obtain the initial value of the PWM). This will take approx. 10 minutes if you choose "3: Triple purging."

(17) Press the **Stop** key to return to the initial stage of the maintenance mode.

3.11 Alignment of Vertical Print Lines

n Function

This function allows you to align vertical lines printed in the forward and backward direction of the carriage.

n Operating Procedure

(1) Press the **6** and **5** keys in this order in the initial stage of the maintenance mode.

The equipment prints out a set of vertical alignment check patterns which consist of No. 1 to No. 9 lines for each of the 360 dpi, 720 dpi, and 1440 dpi.

If the vertical alignment is on, No. 5 line (each in the 360 dpi, 720 dpi, and 1440 dpi printouts) shows vertically aligned lines as shown on the next page.

The LCD shows the "360DPI ADJUST" and "ENTER NO. (1-9)" alternately.

(2) Check the printed vertical alignment check patterns for the 360 dpi and find which number line shows full alignment. If the line is other than No. 5, enter that line number by using the numerical keys. In the example given below, No. 5 line is not aligned and No. 9 line is fully aligned, so press the **9** key.

The LCD shows the "720DPI ADJUST" and "ENTER NO. (1-9)" alternately.

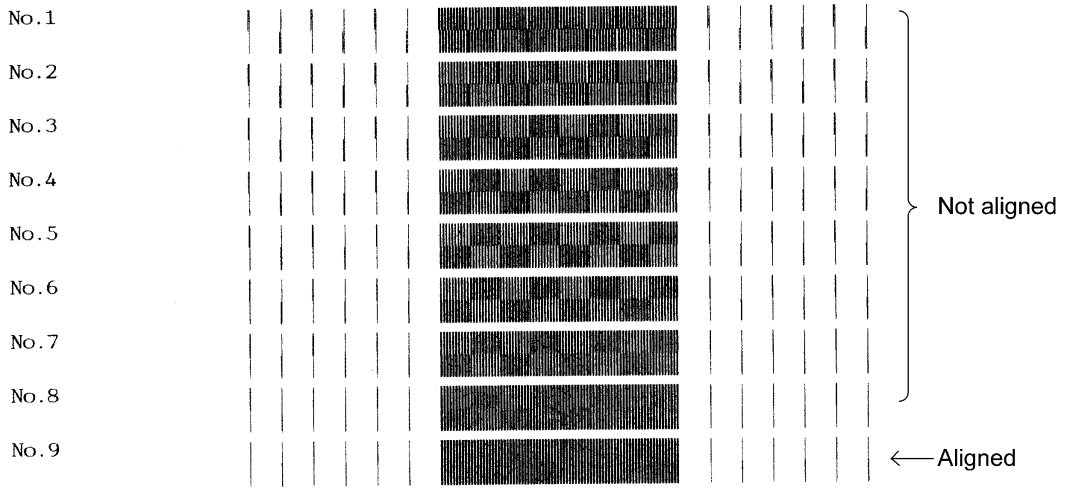
(3) For the 720 dpi, perform the same operation as in step (2).

The LCD shows the "1440DPI ADJUST" and "ENTER NO. (1-9)" alternately.

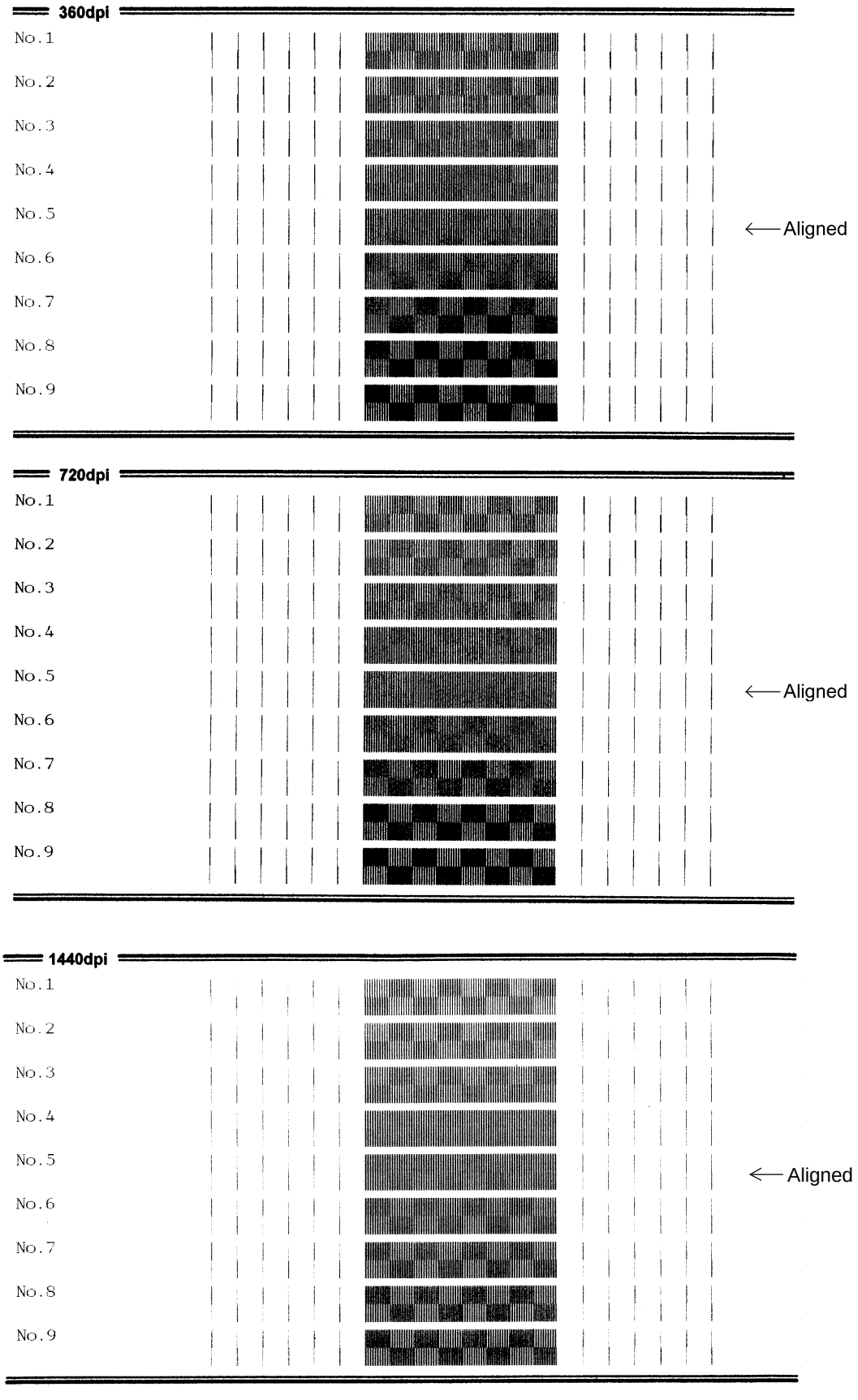
(4) For the 1440 dpi, perform the same operation as in step (2).

The equipment automatically returns to the initial stage of the maintenance mode.

NOTE: If No. 1 line or No. 9 line is fully aligned so that you press the **1** or **9** key in the above procedure, go back to step (1) to confirm that No. 5 line becomes aligned.



Vertical Alignment Check Pattern—Alignment OFF



Vertical Alignment Check Pattern—Alignment ON

3.12 Initial Adjustment of PWM Value (Aging of the Carriage)

n Function

This function obtains the initial value of the PWM by aging the carriage and writes it onto the EEPROM, as well as checking the head drive voltage level.

This aging procedure should be performed if you replace the print head, carriage ASSY, carriage motor, or encoder strip or if you loosen the CCD drive belt.

NOTE: Opening the scanner unit during the aging procedure will result in an error. If you perform this aging procedure with the scanner unit opened, the equipment will slowly age the carriage resulting in an error after completion of the aging.

n Operating Procedure

(1) Press the **6** and **9** keys in this order in the initial stage of the maintenance mode.

The equipment starts aging the carriage, showing the "CR AGING" on the LCD.

After writing the initial value of the PWM onto the EEPROM and checking the head drive voltage level, the equipment automatically returns to the initial stage of the maintenance mode.

If any error occurs, the equipment beeps and shows "CR AGING :ERROR" on the LCD. To return to the initial stage of the maintenance mode, press the **Stop** key.

3.13 EEPROM Customizing

n Function

This function allows you to customize the EEPROM according to language, function settings, and firmware switch settings. The customizing codes list is given in Appendix 1.

NOTE: If you replace the main PCB, be sure to carry out this procedure.

n Operating Procedure

(1) Press the **7** and **4** keys in this order in the initial stage of the maintenance mode.

The current customizing code (e.g., 1001 in the case of MFC9100C U.S.A. version) appears.

(2) Enter the desired customizing code (e.g., 0002 in the case of MFC9100C Canadian version).

The newly entered code appears.

NOTE: *If a wrong 4-digit code is entered, the equipment will malfunction.*

(3) Press the **Start** key.

The equipment saves the setting and returns to the initial stage of the maintenance mode.

If you press the **Stop** key or no keys are pressed for one minute in the above procedure, the equipment stops the procedure and returns to the initial stage of the maintenance mode.

3.14 Equipment Error Code Indication

n Function

This function displays an error code of the last error on the LCD.

n Operating Procedure

(1) Press the **8** and **2** keys in this order in the initial stage of the maintenance mode.

The LCD shows the "MACHINE ERR X X."

NOTE: The "MACHINE ERR X X X X" may appear. The lower two X X shows the detailed code for assembly line.

(2) To stop this operation and return the equipment to the initial stage of the maintenance mode, press the **Stop** key.

3.15 Output of Transmission Log to the Telephone Line

n Function

This function outputs the transmission log (that the equipment has stored about the latest transmission) to the telephone line. It allows the service personnel to receive the transmission log of the user's equipment at a remote location and use it for analyzing problems arising in the user's equipment.

n Operating Procedure

(1) If the user's equipment has a transmission-related problem, call the user's equipment at a remote location from your equipment.

(2) If the line is connected, have the user perform the following:

1) MFC9100C: Press the **Function**, **Resolution**, and **0** keys in this order.

2) MFC760: Press the **Menu**, **Resolution**, and **0** keys in this order.

The above operation makes the user's equipment send CNG to your equipment for sending the transmission log.

(3) If you hear the CNG sent from the user's equipment, press the **Start** key of your equipment.

Your equipment will start to receive the transmission log from the user's equipment.

CHAPTER VI.

ERROR INDICATION AND TROUBLESHOOTING

CHAPTER VI. ERROR INDICATION AND TROUBLESHOOTING

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1. ERROR INDICATION

To help the user or the service personnel promptly locate the cause of a problem (if any), the facsimile equipment incorporates the self-diagnostic functions which display error messages for equipment errors and communications errors.

For the communications errors, the equipment also prints out the transmission verification report and the communications list.

1.1 Equipment Errors

If an equipment error occurs, the facsimile equipment emits an audible alarm (continuous beeping) for approximately 4 seconds and shows the error message on the LCD. For the error messages, see [1] below.

To display detailed error information, use the maintenance-mode function code 82 described in Chapter V, Section 3.14 (that is, make the equipment enter the maintenance mode and then press the **8** and **2** keys). Following the MACHINE ERR, one of the error codes listed in [2] will appear on the LCD.

[1] Error messages on the LCD

Messages on the LCD	Probable Cause
CHECK PAPER	The registration sensor detects no recording paper loaded in the paper cassette.
PRINTER JAM	The paper ejection sensor detects that a paper jam has occurred.
CHECK PAPER SIZE	The paper width sensor stays ON, detecting no recording paper wider than A4-size loaded. Or the sensor stays OFF too long, detecting that the paper is abnormally long.
COVER OPEN	The cover sensor detects that the scanner unit is not closed.
CHECK CASSETTE	The cassette sensor detects that the paper cassette is not loaded properly.
DOCUMENT JAM	n Document jam (1) The document length exceeds the limitation (400 or 90 cm) registered by firmware switch WSW16. (Refer to Chapter V, Section 3.5.) (Both the document front and rear sensors stay ON even after the document has been fed by the registered length.) (2) The document rear sensor detects no trailing edge of a document after the document has been fed by 400 cm. (The document rear sensor stays ON even after the document has been fed when the document front and rear sensors were OFF and ON, respectively.)

Messages on the LCD	Probable Cause
DOCUMENT JAM	n Document loading error (1) The document rear sensor detects no leading edge of a document within 10 seconds from the start of document loading operation. (The document rear sensor stays OFF even after the document has been fed when the document front sensor was ON.) (2) The loaded document is too short. (Since the document is shorter than the distance between the document front and rear sensors, the document front sensor is turned OFF before the document rear sensor is turned ON.)
CLEAN UP SCANNER	In the scanning compensation data list printed by the maintenance-mode function code 05 (refer to Chap. V, Section 3.2), less than fifty percent of the white level data is faulty. (This message may appear only in the maintenance mode)
SCANNER ERROR	In the scanning compensation data list printed by the maintenance-mode function code 05 (refer to Chap. V, Section 3.2), fifty percent or more of the white level data is faulty. (This message may appear only in the maintenance mode)
NEAR EMPTY CYAN NEAR EMPTY MGENT NEAR EMPTY YELLW NEAR EMPTY BLACK	The ink dot counter (for cyan, magenta, yellow, or black) in the EEPROM on the head PCB has counted up the specified number of dots, meaning near empty of ink. Even if any of these messages is displayed, color printing is still possible.
INK EMPTY CYAN INK EMPTY MAGENT INK EMPTY YELLOW INK EMPTY BLACK	The ink dot counter (for cyan, magenta, yellow, or black) in the EEPROM on the head PCB has counted up the specified number of dots, meaning that the ink has run out. Once any of these messages is displayed, color printing is no longer possible. (If black ink remains, printing of the received data record or monochrome copying is possible.) **NOTE:** For checking how much the black ink remains accurately, the controller compensates the ink dot count with the black ink empty sensor.
SET CARTRIDGES	Any one of the four ink cartridge sensors detects no ink cartridge loaded.
WARMING UP	The temperature inside the equipment has dropped to 5.5°C or below after two hours of powering-on state, or it has dropped to 3.5°C or below within two hours of powering-on state. This message appears also when the fluorescent light in the scanner unit is warming up; that is, for approx. 3 minutes after the fluorescent light comes on.
COOLING DOWN	The temperature inside the equipment has exceeded 48°C.

Messages on the LCD	Probable Cause
SET INK HEAD	The CPU on the main PCB has detected no print head mounted when attempting to read the property information obtained by the head property detector and stored in the EEPROM on the head PCB.
PLS OPEN COVER	To display the relating detailed error code, use maintenance-mode function code 82. (Refer to Chapter V, Section 3.14.) If this message appears, open and close the scanner unit. The message may disappear if opening/closing the scanner unit removes the error. If the error persists, the "MACHINE ERROR X X" will appear instead of this message.
CHECK SCAN LOCK	The output of the CCD HP sensor does not change because: 1) The CCD lock is placed in the lock (backward) position, 2) The CCD HP sensor is defective, or 3) The CCD motor is defective.
PC BUSY OR FAIL	After connected with the host computer, the equipment has received no response from the computer. (A communications error has occurred.)

If only an alarm beep is heard without any message on the LCD when the equipment is powered up, the ROM or RAM will be defective.

[2] Error codes shown in the "MACHINE ERR X X " message

If the LCD shows the "PLS OPEN COVER" message, you can display the detailed error code following the MACHINE ERR, by using the maintenance-mode function code 82 described in Chapter V, Section 3.14.

NOTE: When checking a PCB as instructed in the "Check:" column, check its harness also.

NOTE: To check sensors, use the maintenance-mode function code 32 described in Chapter V, Section 3.8 (that is, press the **3** and **2** keys in the maintenance mode).

Error Code (Hex)	Error factor	Check:
23	Printer engine timeout.	• Main PCB
25	Ink cartridges had already been loaded when the power was first applied.	Reload ink cartridges, referring to the Owner's Manual.
31	The carriage cannot travel to the right or left.	• Carriage ASSY • Encoder strip (Any stains or scratches? Hooked correctly?) • Paper feed motor • Main PCB • Power supply PCB • Purge unit • Main chassis
32	After driven by the specified number of pulses, the carriage does not stop (since it cannot detect the left end of the travel).	
33	The carriage movement parameter exceeded the travel range during printing.	
34	When initialized, the carriage could not detect the right or left end of the travel range.	
35	The carriage cannot move in midway of travel.	
38	The carriage stop position is out of the travel range.	
39	Printing area error.	
3A	Sudden carriage stop during printing acceleration.	• Carriage ASSY • Encoder strip (Any stains or scratches? Hooked correctly?) • Paper feed motor • Main PCB • Power supply PCB • Purge unit • Main chassis
3D	The carriage has overridden the travel range.	
41	The head drive voltage has not been turned from Low to High within the specified time.	• Carriage ASSY • Main PCB • Print head unit • Power supply PCB
42	The head drive voltage has not been turned from High to Low within the specified time.	
43	The head drive voltage sticks to Low.	• Print head unit • Main PCB • Power supply PCB

Error Code (Hex)	Error factor	Check:
44	Head thermistor broken.	• Print head unit • Carriage ASSY • Main PCB
45	Head thermistor short-circuited.	
46	The number of performed purge sequences has reached the limit.	• Ink absorbers • Main PCB
4B	Abnormal carriage travel speed detected when the power was applied.	• Encoder strip (Any stains or scratches? Hooked correctly?) • Purge unit • Main chassis • Carriage ASSY • Main PCB
4C	Head rated voltage data stored in the EEPROM on the head PCB is invalid. (This code may appear only in the maintenance mode.)	• Print head unit • Main PCB • Power supply PCB
50	The purge cam HP switch does not come ON even after the purge cam has been driven by the specified number of pulses.	• Purge unit • Main chassis • Paper feed motor • Main PCB
51	The purge cam HP switch does not go OFF even after the purge cam has been driven by the specified number of pulses.	
52	At the time of purge operation, the carriage has not stopped in the purge position.	
53	The purge cam HP switch has come ON when the carriage was in the wipe position.	
54	When reset, the purge cam HP switch does not come ON even after the purge cam has been driven by the specified number of pulses.	
55	When reset, the purge cam HP switch does not go OFF even after the purge cam has been driven by the specified number of pulses.	

Error Code (Hex)	Error factor	Check:
82	Recording paper feeding error.	• Paper cassette • Registration sensor actuator • Paper width sensor actuator • Main PCB
83	Recording paper jam. (The registration sensor sticks to OFF, indicating that paper has jammed.)	• Registration sensor actuator • Main PCB
84	Recording paper jam. (The paper ejection sensor has detected a paper jam.)	• Paper ejection sensor actuator • Registration sensor actuator • Main PCB
88	Recording paper jam. (Even after the registration sensor has come ON, the paper ejection sensor does not detect paper.)	
A1	Scanner unit opened.	• Cover sensor actuator • Main PCB • Scanner unit
A2	Document too long to scan.	• Document front sensor actuator • Document rear sensor actuator • Control panel PCB • Document sensor PCB • Document feed roller ASSY • ADF motor • Main PCB
A3	Document not detected by the document rear sensor.	
A4	50% or more faulty of white level data.	• CCD unit • Main PCB
A7	One-line feeding timeout.	
A8	One-line scanning timeout.	
AC	Less than 50% faulty of white level data.	• CCD unit • Main PCB
AE	The CCD HP sensor sticks to OFF, indicating that the scanner has not returned to the home position.	• CCD HP sensor • Main PCB • CCD motor • CCD drive belt
AF	The CCD HP sensor sticks to ON, indicating that the scanner has stayed in the home position.	

Error Code (Hex)	Error factor	Check:
B8	A/D voltage regulation error.	• Carriage ASSY • Main PCB • Power supply PCB
B9	Light emission intensity error of the cold-cathode fluorescent lamp.	• CCD unit • Main PCB
BA	Scan area left edge detection error	• Wrong location of the white-level reference film
BB	Scan area right edge detection error	
BE	Detection error of black mark or its edge prepared for scan position correction	• No black mark found on the white-level reference film
D5	The MODEM has failed to complete the command transmission sequence.	
E4	Out of recording paper.	• Paper cassette • Registration sensor actuator • Paper pick-up roller ASSY • Main PCB
E6	Write error in EEPROM	• Main PCB
E8	Data scanning error during transmission.	• CCD unit • Main PCB
EA	Document removed at phase B	
F6	PC interface error	• Interface cable • Main PCB
10	Dark level offset data error: Too high.	• CCD unit • Main PCB • CCD flat cable
11	Dark level offset data error: Too low.	
12	Gain control data error: White level too high.	
13	Gain control data error: White level too low.	
14	A/D converter reference level for center value: Too high.	
15	A/D converter reference level for center value: Too low.	
16	A/D converter reference level for full range: Not adjustable.	

1.2 Communications Errors

If a communications error occurs, the facsimile equipment

① emits an audible alarm (intermittent beeping) for approximately 4 seconds,

② displays the corresponding error message, and

③ prints out the transmission verification report if the equipment is in sending operation.

n Definition of Error Codes on the Communications List

(1) Calling

Code 1	Code 2	Causes
10	08	Wrong number called.
11	01	No dial tone detected before start of dialing.
11	02	Busy tone detected before dialing.
11	03	2nd dial tone not detected.
11	05	No loop current detected.*
11	06	Busy tone detected after dialing or called.
11	07	No response from the remote station in sending.
11	10	No tone detected after dialing.
17	07	No response from the calling station in receiving.

*Available in German versions only.

(2) Command reception

Code 1	Code 2	Causes
20	01	Unable to detect a flag field.
20	02	Carrier was OFF for 200 ms or longer.
20	03	Abort detected ("1" in succession for 7 bits or more).
20	04	Overrun detected.
20	05	A frame for 3 seconds or more received.
20	06	CRC error in answerback.
20	07	Undefined command received.
20	08	Invalid command received.
20	09	Command ignored once for document setting or for dumping-out at turn-around transmission.
20	0A	T5 time-out error
20	0B	CRP received.
20	0C	EOR and NULL received.

(3) Compatibility [checking the NSF and DIS]

Code 1	Code 2	Causes
32	01	Remote terminal only with V.29 capability in 2400 or 4800 bps transmission.
32	02	Remote terminal not ready for polling.
32	10	Remote terminal not equipped with password function or its password switch OFF.
32	11	Remote terminal not equipped with or not ready for confidential mail box function.
32	12	Remote terminal not equipped with or not ready for relay broadcasting function.
32	13	No confidential mail in the remote terminal.
32	14	The available memory space of the remote terminal is less than that required for reception of the confidential or relay broadcasting instruction.

(4) Instructions received from the remote terminal [checking the NSC, DTC, NSS, and DCS]

Code 1	Code 2	Causes
40	02	Illegal coding system requested.
40	03	Illegal recording width requested.
40	05	ECM requested although not allowed.
40	06	Polled while not ready.
40	07	No document to send when polled.
40	10	Nation code or manufacturer code not coincident.
40	11	Unregistered group code entered for relay broadcasting function, or the specified number of broadcasting subscribers exceeding the limit.
40	12	Retrieval attempted when not ready for retrieval.
40	13	Polled by any other manufacturers' terminal while waiting for secure polling.
40	17	Invalid resolution selected.

(5) Command reception [checking the NSF and DIS after transmission of NSS and DCS]

Code 1	Code 2	Causes
50	01	Vertical resolution capability changed after compensation of background color.

(6) ID checking

Code 1	Code 2	Causes
63	01	Password plus "lower 4 digits of telephone number" not coincident.
63	02	Password not coincident.
63	03	Polling ID not coincident.
63	04	Entered confidential mail box ID uncoincident with the mail box ID.
63	05	Relay broadcasting ID not coincident.
63	06	Entered retrieval ID uncoincident with that of the mail box ID.

(7) DCN reception

Code 1	Code 2	Causes
74		DCN received.

(8) TCF transmission/reception

Code 1	Code 2	Causes
80	01	Fallback impossible.

(9) Signal isolation

Code 1	Code 2	Causes
90	01	Unable to detect video signals and commands within 6 seconds after CFR is transmitted.
90	02	Received PPS containing invalid page count or block count.

(10) Video signal reception

Code 1	Code 2	Causes
A0	03	Error correction sequence not terminated even at the final transmission speed for fallback.
A0	11	Receive buffer empty. (5-second time-out)
A0	12	Receive buffer full during operation except receiving into memory.
A0	13	Decoding error continued on 500 lines.
A0	14	Decoding error continued for 10 seconds.
A0	15	Time-out: 5 seconds or more for one-line transmission.
A0	16	RTC not found and carrier OFF signal detected for 6 seconds.
A0	17	RTC found but no command detected for 60 seconds.
A0	18	Receive buffer full during receiving into memory.
A8	01	RTN, PIN, or ERR received at the calling terminal.*
A9	01	RTN, PIN, or ERR received at the called terminal.*

* Available in German versions only

(11) General communications-related

Code 1	Code 2	Causes
B0	02	Unable to receive the next-page data.
B0	03	Unable to receive polling even during turn-around transmission due to call reservation.
B0	04	PC interface error.

(12) Maintenance mode

Code 1	Code 2	Causes
E0	01	Failed to detect 1300 Hz signal in burn-in operation.
E0	02	Failed to detect PB signals in burn-in operation.

(13) Equipment error

Code 1	Code 2	Causes
FF	X X	Equipment error (For X X, refer to Section 1.1 [2].)

2. TROUBLESHOOTING

2.1 Introduction

This section gives the service personnel some of the troubleshooting procedures to be followed if an error or malfunction occurs with the facsimile equipment. It is impossible to anticipate all of the possible problems which may occur in future and determine the troubleshooting procedures, so this section covers some sample problems. However, those samples will help service personnel pinpoint and repair other defective elements if he/she analyzes and examines them well.

2.2 Precautions

Be sure to observe the following to prevent the secondary troubles from happening:

(1) Always unplug the AC power cord from the outlet when removing the covers and PCBs, adjusting the mechanisms, or conducting continuity testing with a circuit tester.

(2) When disconnecting the connectors, do not pull the lead wires but hold the connector housings.

(3)
- Before handling the PCBs, touch a metal portion of the machine to discharge static electricity charged in your body.
- When repairing the PCBs, handle them with extra care.

After repairing the defective section, be sure to check again if the repaired section works correctly. Also record the troubleshooting procedure so that it would be of use for future trouble occurrence.

2.3 Checking prior to Troubleshooting

Prior to proceeding to the troubleshooting procedures given in Subsection 2.4, make the following initial checks:

Environmental conditions

Check that:

(1) The machine is placed on a flat, firm surface.

(2) The machine is used in a clean environment at or near normal room temperature (10°C to 35°C) with normal relative humidity (20 to 80%).

(3) The machine is not exposed to direct sunlight or harmful gases.

Power requirements

Check that:

(1) The power supply specified on the rating plate located on the bottom of the machine is used. The supply voltage stays within the rating ±10%.

(2) Each voltage level on AC input lines and DC lines is correct.

(3) All cables and harnesses are firmly connected.

(4) None of the fuses are blown.

Recording paper

Check that:

(1) A recommended type of recording paper is used.

(2) The recording paper is not dampened.

Ink cartridges

(1) Check that all of four ink cartridges are loaded.

Print head

(1) Check that the print head is installed on the carriage correctly. (Check the dimple contact between the print head PCB and the carriage PCB.)

(2) Repeat the head purging operation several times.

2.4 Troubleshooting Procedures

[1] Control panel related

Trouble	Check:
(1) LCD shows nothing.	• Panel-main harness • Control panel PCB • Power supply PCB • Main PCB
(2) Control panel inoperative.	• Panel-main harness • Control panel PCB • FPC key • Main PCB

[2] Telephone related

Trouble	Check:
(1) No phone call can be made.	• FPC key • Control panel PCB • NCU PCB • Main PCB
(2) Speed dialing or one-touch dialing will not work.	• Ordinary dialing function (other than the speed and one-touch dialing) If it works normally, check the main PCB; if not, refer to item (1) above.
(3) Speaker silent during on-hook dialing.	• Check speaker. If it works normally, refer to item (1) above.
(4) Dial does not switch between tone and pulse.	• Main PCB

Trouble	Check:
(5) Telephone does not ring.	• Speaker • NCU PCB • Main PCB

[3] Communications related

Trouble	Check:
(1) No tone is transmitted.	• Main PCB • NCU PCB

[4] Paper/document feeding related

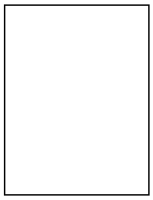
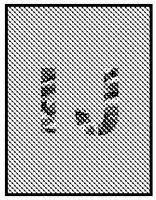
Trouble	Check:
(1) Neither "COPY: PRESS COPY" nor "FAX: NO. & START" message appears although documents are set.	• Sensors by using the maintenance-mode function code 32. (Refer to Chapter V, Section 3.8.) • Document front sensor actuator and document rear sensor actuator • Main PCB
(2) Document not fed.	• ADF and its related sections • ADF motor and its harness • Document feed rollers and their related gears • Main PCB
(3) Document double feeding	• ADF parts
(4) Document jam	• ADF motor
(5) Recording paper not fed.	• Paper cassette related gears • Main PCB
(6) Recording paper jam	• Paper feeding mechanism • Paper cassette

[5] Print-image related

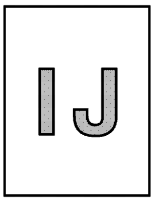
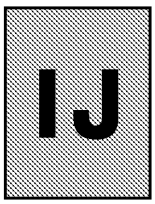
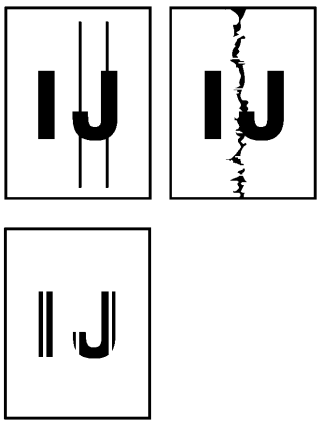
If the received or sent image has any problem, first make a copy with the facsimile equipment.

If the copied image is normal, the problem may be due to the remote terminal; if it is abnormal, proceed to the following checks:

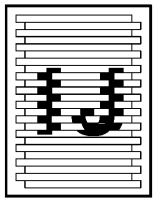
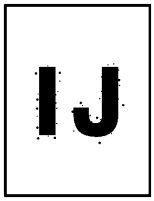
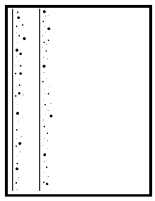
Jobs enclosed by parentheses (♦) require the special adjustment jig.

Trouble	Action to be taken
(1) Completely blank 	<u>At the scanner</u> Check the following components: - CCD flat cable - CCD unit - Main PCB
(2) Random color 	<u>At the printer</u> • Check the ink cartridges. If any cartridges have run out of ink, replace them. • Check the dimple contact between the print head PCB and the carriage PCB. Clean it if contaminated. (♦ If the problem persists, replace the carriage ASSY.) • Check the connection of the head flat cables on the main PCB. (♦ If either of those cables is broken or damaged, replace the carriage ASSY.) • Replace the main PCB.
(3) All black	<u>At the scanner</u> Check the following components: - CCD flat cable - CCD unit - Main PCB <u>At the printer</u> Check the following components: - Print head unit - Main PCB - Carriage ASSY (♦ Replace the carriage ASSY.)

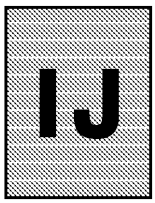
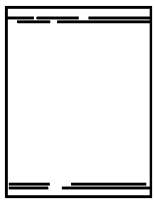
Jobs enclosed by parentheses (♦) require the special adjustment jig.

Trouble	Action to be taken
(4) Light 	<u>At the scanner</u> Check the following components: - CCD unit - Main PCB <u>At the printer</u> Check the following components: - Ink cartridges - Print head unit - Main PCB - Power supply PCB
(5) Dark 	<u>At the scanner</u> Check the following components: - CCD unit - Main PCB <u>At the printer</u> • For each of the four ink-jet units, perform the head purging operation several times to remove dust or air bubbles from its nozzles. If the problem persists, replace the print head unit. • Check the paper feed-related rollers. (♦ Replacement of the paper feed roller or paper ejection roller requires the special adjustment jig.) • Replace the main PCB and power supply PCB.
(6) Black or blurred vertical stripes 	<u>At the scanner</u> Check the following components: - CCD unit <u>At the printer</u> • Check whether paper is in abnormal contact with any other components during ejecting. • Check the encoder strip for stains or scratches. (♦ If the encoder strip is not hooked properly, correct it.)

Jobs enclosed by parentheses (♦) require the special adjustment jig.

Trouble	Action to be taken
(7) Print edges not aligned 	At the printer • Check the alignment of vertical print lines by using the maintenance-mode function code 65. (Refer to Chapter V, Section 3.11). • Check the print head unit. • Check the encoder strip for stains or scratches. (♦ If the encoder strip is not hooked properly, correct it.)
(8) Ink splash  	At the printer • For each of the four ink-jet units, perform the head purging operation several times to remove dust or air bubbles from its nozzles. • Check the ink cartridges. Any of them has run out of ink or the ink viscosity has been increased, so replace it. • Replace the print head unit. • Replace the main PCB • Replace the power supply PCB. • (♦ Adjust the head-platen gap by turning the eccentric bushings on the carriage rail.)
(9) Random missing dots 	At the printer • For each of the four ink-jet units, perform the head purging operation several times to remove dust or air bubbles from its nozzles. • Check the ink cartridges. If any cartridges have run out of ink, replace them. • Check the dimple contact between the print head PCB and the carriage PCB. Clean it if contaminated. • Replace the print head unit. (♦ If the problem persists, replace the carriage ASSY.) • Check the connection of the head flat cables on the main PCB. (♦ If either of those cables is broken or damaged, replace the carriage ASSY.) • Replace the main PCB • (♦ Adjust the position of the purge unit.) • (♦ Clean the purge cap of the purge unit with the head cleaner. If the wiper or the pump of the purge unit is defective, replace the purge unit.)

Jobs enclosed by parentheses (♦) require the special adjustment jig.

Trouble	Action to be taken
(10) White horizontal streaks 	• For each of the four ink-jet units, perform the head purging operation several times to remove dust or air bubbles from its nozzles. • Replace the print head unit. • Check the paper feed-related rollers. (♦ Replacement of the paper feed roller or paper ejection roller requires the special adjustment jig.)
(11) Stained leading edge of recording paper 	<u>At the printer</u> • Clean the nozzle ends of the ink-jet units. • (♦ Adjust the head-platen gap by turning the eccentric bushings on the carriage rail.)

[6] PC-driven or video capture-driven printing

Trouble	Check:
(1) PC-driven printing is impossible.	• Interface with the host computer • PC interface cable • Main PCB • Centronics interface
(2) Video capture-driven printing is impossible	• VC connector PCB • Main PCB • Centronics interface
(3) Video printing is impossible.	• VC connector PCB • Main PCB

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SM5CA203
Printed in Japan

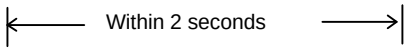
MFC9100C/MFC760

Appendix 1. EEPROM Customizing Codes

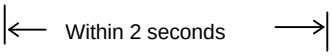
EEPROM Customizing Codes

This function allows you to customize the EEPROM according to language, function settings, and firmware switch settings.

n Operating Procedure



(1) MFC9100C: Press the **Function**, *****, **2**, **8**, **6**, and **4** keys in this order to make the facsimile equipment enter the maintenance mode.



MFC760: Press the **Menu**, *****, **2**, **8**, **6**, and **4** keys in this order to make the facsimile equipment enter the maintenance mode.

The equipment beeps for approx. one second and displays " ▮▮ MAINTENANCE ▮▮▮ " on the LCD.

(2) Press the **7** and **4** keys in this order in the initial stage of the maintenance mode.

The current customizing code (e.g., 1001 in the case of MFC9100C U.S.A. versions) appears.

(3) Enter the desired customizing code (e.g., 0002 in the case of MFC9100C Canadian versions).

The newly entered code appears.

NOTE: *If a wrong 4-digit code is entered, the equipment will malfunction.*

(4) Press the **Start** key.

The equipment saves the setting and returns to the initial stage of the maintenance mode.

If you press the **Stop** key or no keys are pressed for one minute in the above procedure, the equipment stops the procedure and returns to the initial stage of the maintenance mode.

n EEPROM Customizing Codes List

(1) MFC9100C

Versions	Model
	MFC9100C
U.S.A.	1001
Canada	0002
Australia	0006
Asia	
Gulf	
Indonesia	
New Zealand	0027
Russia	

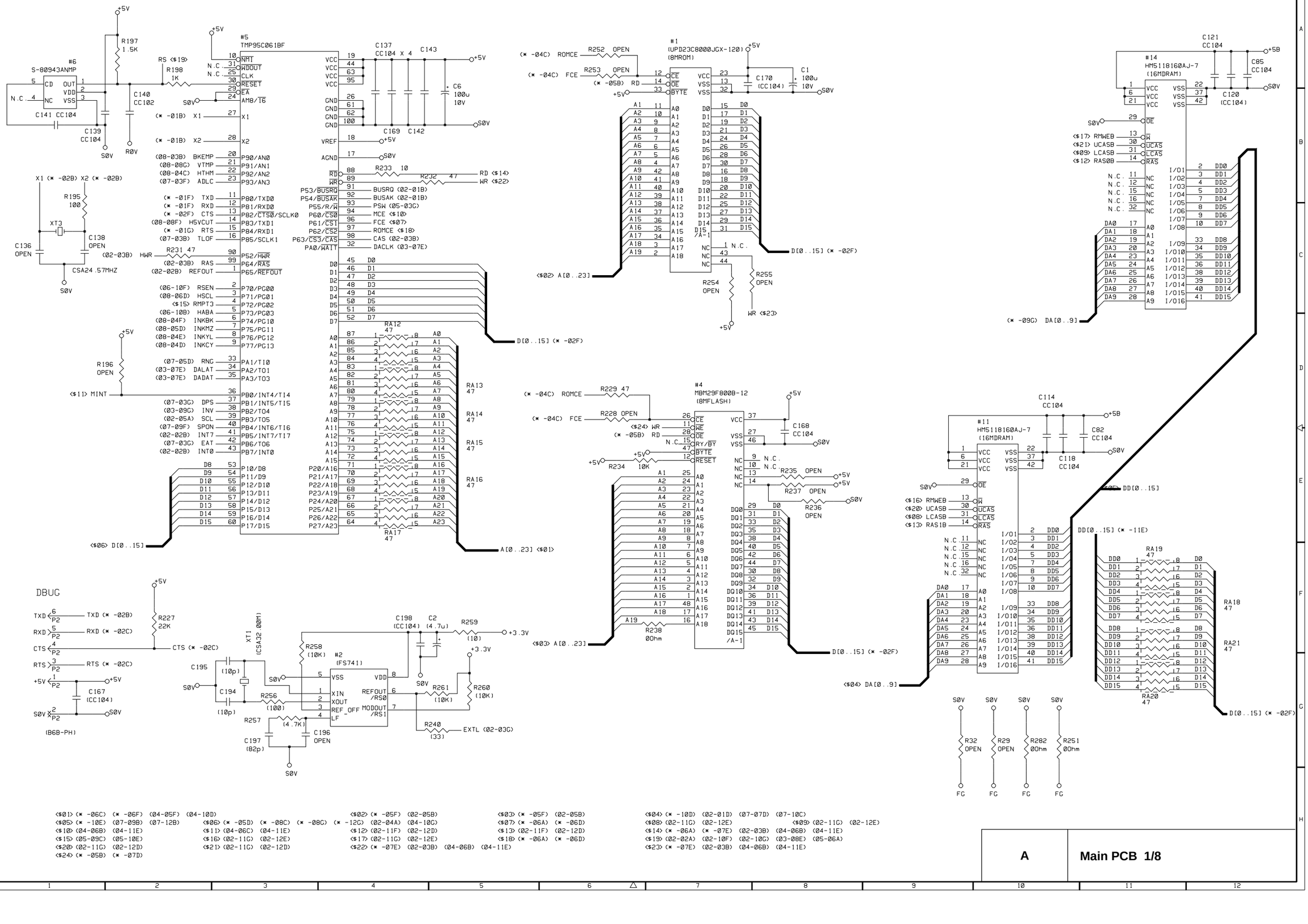
(2) MFC760

Versions	Model
	MFC760
Germany	0003
U.K.	0004
France	0005
Norway	0007
Belgium	0008
Netherlands	0009
Switzerland	0010
Denmark	0013
Spain	0015
Italy	0016
Sweden	0026

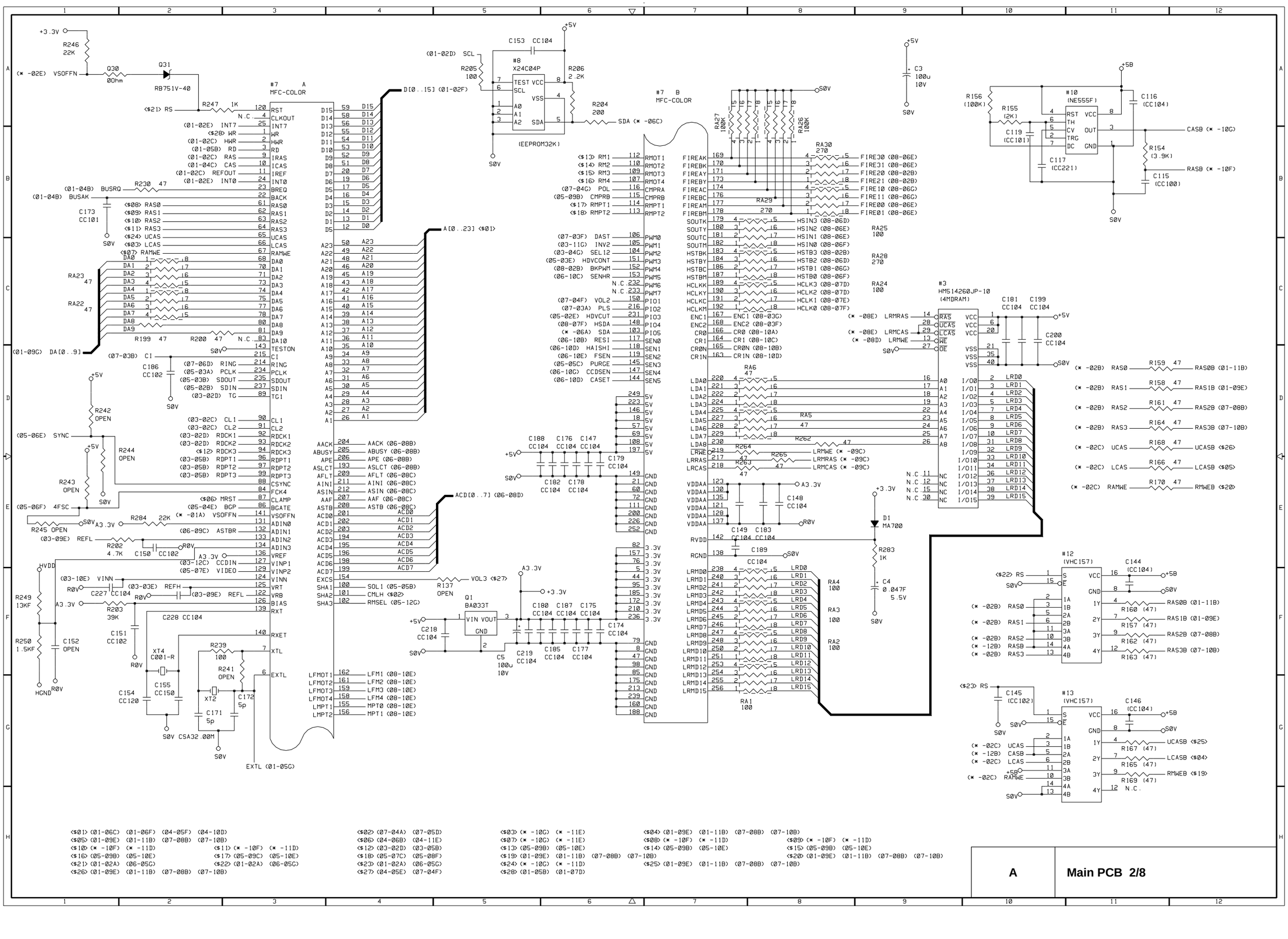
MFC9100C/MFC760

Appendix 2. Circuit Diagrams

A. Main PCB
B. Network Control Unit (NCU) PCB
C. Control Panel PCB
D. Power Supply PCB



<$01> (* -06C) (* -06F) (04-05F) (04-10D)
<$02> (* -05F) (02-05B)
<$03> (* -05F) (02-05B)
<$04> (* -10D) (02-01D) (07-07D) (07-10C)
<$05> (* -10E) (07-09B) (07-12B)
<$06> (* -05D) (* -08C) (* -08G) (* -12G) (02-04A) (04-10C)
<$07> (* -06A) (* -06D)
<$08> (02-11G) (02-12E)
<$09> (02-11G) (02-12E)
<$10> (04-06B) (04-11E)
<$11> (04-06C) (04-11E)
<$12> (02-11F) (02-12D)
<$13> (02-11F) (02-12D)
<$14> (* -06A) (* -07E) (02-03B) (04-06B) (04-11E)
<$15> (05-09C) (05-10E)
<$16> (02-11G) (02-12E)
<$17> (02-11G) (02-12E)
<$18> (* -06A) (* -06D)
<$19> (02-02A) (02-10F) (02-10G) (03-08E) (05-06A)
<$20> (02-11C) (02-12D)
<$21> (02-11G) (02-12D)
<$22> (* -07E) (02-03B) (04-06B) (04-11E)
<$23> (* -07E) (02-03B) (04-06B) (04-11E)
<$24> (* -05B) (* -07D)


#7 A MFC-COLOR
#7 B MFC-COLOR
#8 X24C04P
(EEPROM32K)
#10 (NE555F)
#3 HM514260JP-10 (4MDRAM)
#12 (VHC157)
#13 (VHC157)
Q30 0Ohm
Q31 RB751V-40
R246 22K
R247 1K
R230 47
R199 47
R200 47
R242 OPEN
R244 OPEN
R243 OPEN
R245 OPEN
R284 22K
R202 4.7K
R203 39K
R249 13KF
R250 1.5KF
R239 100
R241 OPEN
R205 100
R206 2.2K
R204 200
R137 OPEN
R283 1K
R156 (100K)
R155 (2K)
R154 (3.9K)
R159 47
R158 47
R161 47
R164 47
R168 47
R166 47
R170 47
R160 (47)
R157 (47)
R162 (47)
R163 (47)
R167 (47)
R165 (47)
R169 (47)
C3 100u 10V
C4 0.047F 5.5V
C5 100u 10V
C116 (CC104)
C115 (CC100)
C117 (CC221)
C119 (CC101)
C173 CC101
C186 CC102
C227 CC104
C228 CC104
C151 CC102
C152 OPEN
C154 CC120
C155 CC150
C150 CC102
C153 CC104
C188 CC104
C176 CC104
C147 CC104
C179 CC104
C182 CC104
C178 CC104
C180 CC104
C187 CC104
C175 CC104
C174 CC104
C218 CC104
C219 CC104
C185 CC104
C177 CC104
C149 CC104
C183 CC104
C148 CC104
C189 CC104
C181 CC104
C199 CC104
C200 CC104
C144 (CC104)
C145 (CC102)
C146 (CC104)
C171 5p
C172 5p
XT4 C001-R
XT2 CSA32.00M
Q1 BA033T
VIN VOUT GND
D1 MA700
RA1 100
RA2 100
RA3 100
RA4 100
RA5 47
RA6 47
RA22 47
RA23 47
RA24 100
RA25 100
RA26 100K
RA27 100K
RA28 270
RA29 270
RA30 270
+3.3V
+5V
+5B
S0V
R0V
A3.3V
HVDD
HGND
VSOFFN
SYNC
4FSC
REFL
VINN
REFH
VOL3 (S27)
CASB (* -10G)
RASB (* -10F)
RAMWE
LRMWE (* -09C)
LRMRAS (* -09C)
LRMCAS (* -09C)
EXTL (01-05G)
ACD[0..7] (06-08D)
D[0..15] (01-02F)
A[0..23] (S01)
DA[0..9] (01-09C)
SCL (01-02D)
SDA (* -06C)
BUSRQ (01-04B)
BUSAK (01-04B)
RS (S21)
INT7 (01-02E)
WR (S28)
HWR (01-02C)
RD (01-05B)
RAS (01-02C)
CAS (01-04C)
REFOUT (01-02C)
INT0 (01-02E)
RAS0 (S08)
RAS1 (S09)
RAS2 (S10)
RAS3 (S11)
UCAS (S24)
LCAS (S03)
RAMWE (S07)
CI (07-03B)
RING (07-06D)
PCLK (05-03A)
SDOUT (05-03B)
SDIN (05-02B)
TG (03-02D)
CL1 (03-02C)
CL2 (03-02C)
RDCK1 (03-02D)
RDCK2 (03-02D)
RDCK3 (S12)
RDPT1 (03-05B)
RDPT2 (03-05B)
RDPT3 (03-05B)
CSYNC
FCK4
MRST (S06)
BGP (05-04E)
VSOFFN (* -01A)
ASTBR (06-09C)
ADIN0
ADIN1
ADIN2
ADIN3
VREF
CCDIN (03-12C)
VIDEO (05-07E)
VINP1
VINP2
VINN
VRT
VRB
BIAS
RXT
RXET
XTL
EXTL
TESTON
RM1 (S13)
RM2 (S14)
RM3 (S15)
RM4 (S16)
POL (07-04G)
CMPRB (05-09B)
RMPT1 (S17)
RMPT2 (S18)
DAST (07-03F)
INV2 (03-11G)
SEL12 (03-04C)
HDVCONT (05-03E)
BKPWM (08-02B)
SENHR (06-10C)
VOL2 (07-04F)
PLS (07-03A)
HDVCUT (05-02E)
HSDA (08-07F)
SDA (* -06A)
RESI (06-10B)
HAISHI (06-10D)
FSEN (06-10E)
PURGE (05-05C)
CCDSEN (06-10G)
CASET (06-10D)
SOL1 (05-05B)
CMLH (S02)
RMSEL (05-12G)
AACK (06-08B)
ABUSY (06-08B)
APE (06-08B)
ASLCT (06-08B)
AFLT (06-08C)
AINI (06-08C)
ASIN (06-08C)
AAF (06-08C)
ASTB (06-08C)
LFM1 (08-10E)
LFM2 (08-10E)
LFM3 (08-10E)
LFM4 (08-10E)
MPT0 (08-10E)
MPT1 (08-10E)
FIREAK
FIREBK
FIREAY
FIREBY
FIREAC
FIREBC
FIREAM
FIREBM
SOUTK
SOUTY
SOUTC
SOUTM
HSTBK
HSTBY
HSTBC
HSTBM
HCLKK
HCLKY
HCLKC
HCLKM
ENC1
ENC2
CR0
CR1
CR0N
CR1N
LDA0
LDA1
LDA2
LDA3
LDA4
LDA5
LDA6
LDA7
LDA8
LRWE
LRRAS
LRCAS
VDDAA
RVDD
RGND
LRMD0
LRMD1
LRMD2
LRMD3
LRMD4
LRMD5
LRMD6
LRMD7
LRMD8
LRMD9
LRMD10
LRMD11
LRMD12
LRMD13
LRMD14
LRMD15
LRD0
LRD1
LRD2
LRD3
LRD4
LRD5
LRD6
LRD7
LRD8
LRD9
LRD10
LRD11
LRD12
LRD13
LRD14
LRD15
(S01) (01-06C) (01-06F) (04-05F) (04-10D)
(S02) (07-04A) (07-05D)
(S03) (* -10G) (* -11E)
(S04) (01-09E) (01-11B) (07-08B) (07-10B)
(S05) (01-09E) (01-11B) (07-08B) (07-10B)
(S06) (04-06B) (04-11E)
(S07) (* -10G) (* -11E)
(S08) (* -10F) (* -11D)
(S09) (* -10F) (* -11D)
(S10) (* -10F) (* -11D)
(S11) (* -10F) (* -11D)
(S12) (03-02D) (03-05B)
(S13) (05-09B) (05-10E)
(S14) (05-09B) (05-10E)
(S15) (05-09B) (05-10E)
(S16) (05-09B) (05-10E)
(S17) (05-09C) (05-10E)
(S18) (05-07C) (05-08F)
(S19) (01-09E) (01-11B) (07-08B) (07-10B)
(S20) (01-09E) (01-11B) (07-08B) (07-10B)
(S21) (01-02A) (06-05G)
(S22) (01-02A) (06-05C)
(S23) (01-02A) (06-05G)
(S24) (* -10G) (* -11D)
(S25) (01-09E) (01-11B) (07-08B) (07-10B)
(S26) (01-09E) (01-11B) (07-08B) (07-10B)
(S27) (04-05E) (07-04F)
(S28) (01-05B) (01-07D)
A
Main PCB 2/8

CCD

I24V
I0V
+5V
S0V
R5V
R0V
+12V
A3.3V

VOUT
R42 390
R48 OPEN
Q32 2SC3928
R60 1K

PH2 R102 200 L14 BLM11B421 CL1 (02-03D)
PH1 R105 200 L15 BLM11B421 CL2 (02-03D)
RS R38 200 L4 BLM11B421 RDCK1 (02-02D)
SEL1 R101 200 L13 BLM11B421 RDCK2 <$01>
SEL2 R39 200 L5 BLM11B421 RDCK3 <$02>
TR R100 200 TG (02-03D)

#27 74HC4051
C40 CC104
VDD INHIBIT VEE VSS X
X0 X1 X2 X3 X4 X5 X6 X7
A B C
RDPT2 (02-02E)
RDPT1 (02-02E)
RDCK3 <$04>
RDPT3 (02-02E)

R18 6.2K
R19 4.3K
R50 7.5K
R49 3K
R44 1.8K
R43 1.3K
R55 2.2K
R54 910

#26 74HC4052
INHIBIT VDD VEE VSS X Y
A B
X0 X1 X2 X3 Y0 Y1 Y2 Y3
C46 CC104
(* -02D) RDCK2
<$03> RDCK3
(* -09E) BDOS
(* -09E) RDOS
(* -09E) GDOS
<$05> REF
(* -09E) BGC
(* -09E) RGC
(* -09E) GGC
GC (* -10C)

R20 7.5K
DA3 DAN217

C45 5P
R52 7.5K
#22 AD8051AR
C44 CC104
N.C. N.C. N.C.
R56 5.6K

R73 1K
R65 OPEN
Q10 2SK208
R67 10K
GC (* -05D)
R68 8.2K
REF (* -04D)

L6 0Ohm
L3 0Ohm
C11 10u 16V
C39 CC104

Q11 2SC3928
R71 100
D4 1SS120
CCDIN (02-02E)
R74 1K

IMSA-9604S-22C

R78 10KF
#29 BA10358 2ch
C53 CC104
R82 10KF
(* -09E) REFL
REFH (02-02F)
C52 CC104
C54 CC104
DA5 DAN202U
R76 1KF
R77 1KF
C50 CC104

R34 OPEN 1/10W
Q12 2SB1132
R33 22K
R35 10K
R7 82 1W
Q6 DTC114YK
(02-06C) SEL12
#25 AN78M12 IN OUT COM
C21 10u 16V
C20 3.3u 50V
C26 CC104 50V

R16 1.5K
HZU4.7V
C29 OPEN
#28 M62359FP
R17 0Ohm
D13
C23 10u 16V
C49 CC104
C22 10u 16V
<$07> RS
(01-04C) DACLK
(01-02D) DADAT
(01-02D) DALAT
VDD VCC VREFU VREFL GND R CLK DI LD DO N.C.
A01 A02 A03 A04 A05 A06 A07 A08 NC NC
RDOS (* -04C)
GDOS (* -04C)
BDOS (* -04C)
RGC (* -04D)
GGC (* -04D)
BGC (* -04D)
REFL <$06>
N.C. N.C.
C51 CC104
VINN (02-01F)
C47 CC104

C225 OPEN
R85 100
#29 BA10358 1ch
R79 1.5K
C55 CC104
R83 1K
R288 OPEN
R290 0Ohm
R289 270
C223 OPEN
C226 CC104
REF (* -04D)

Q2 HAT1024R
C300 CC104 50V
R37 6.8K
R36 8.2K
(01-02D) INV
R75 1K
<$08> RSTT
D6 MA700
Q7 DTC114EK
(02-06C) INV2
R286 6.8K
R287 8.2K
C224 100u 35V
Q9 DTC114EK

<$01> (02-02D) (* -04C)
<$02> (02-02D) (* -04C)
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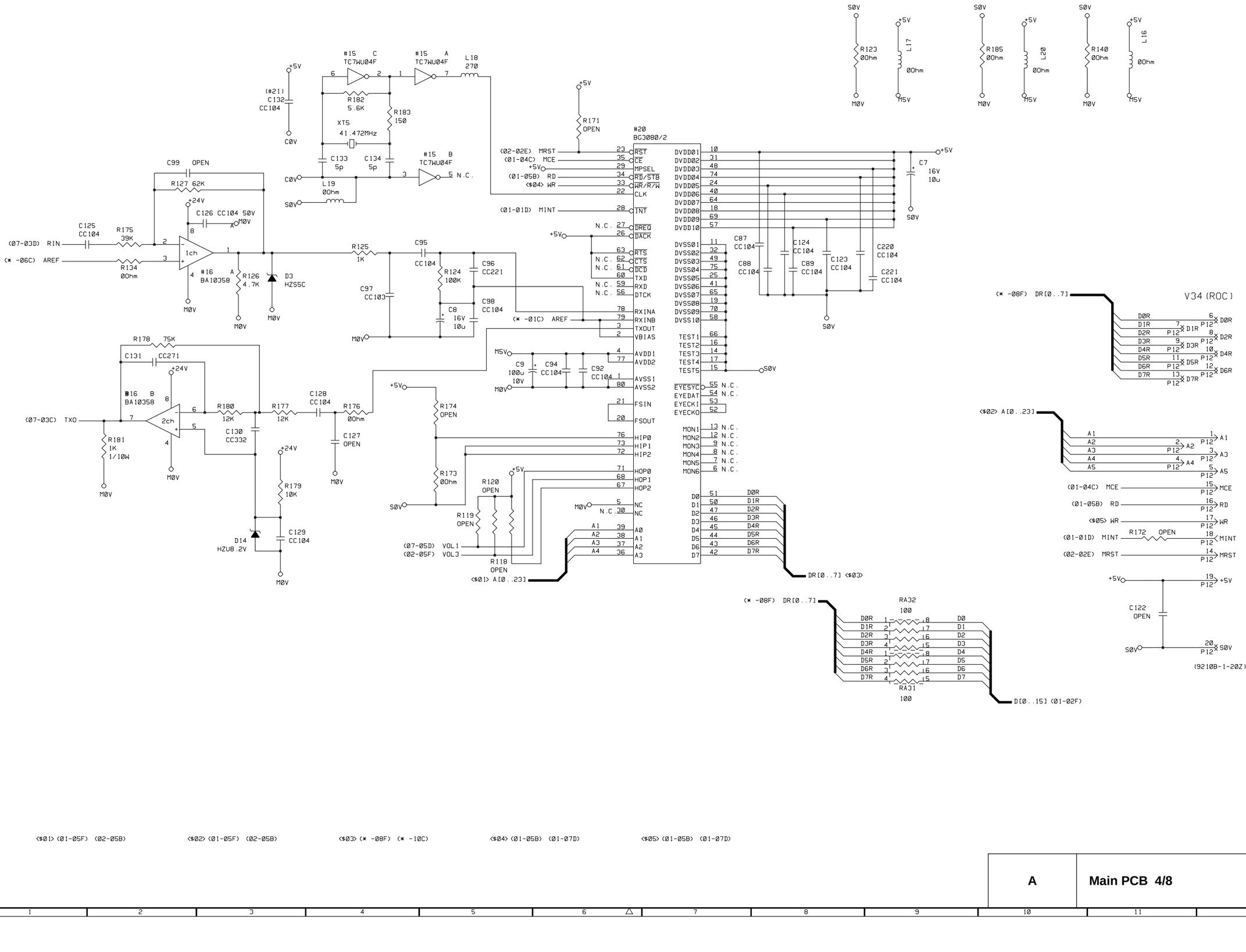
<$04> (02-02D) (* -04C)
<$05> (* -08D) (* -08G)
<$06> (02-01E) (02-03F) (* -01E) (* -03F)
<$07> (01-02A) (06-05G)
<$08> (05-05B) (05-08A) (05-10H) (07-03B) (07-03F) (08-09D)

A	Main PCB 3/8



<$01> (01-05F) (02-05B)

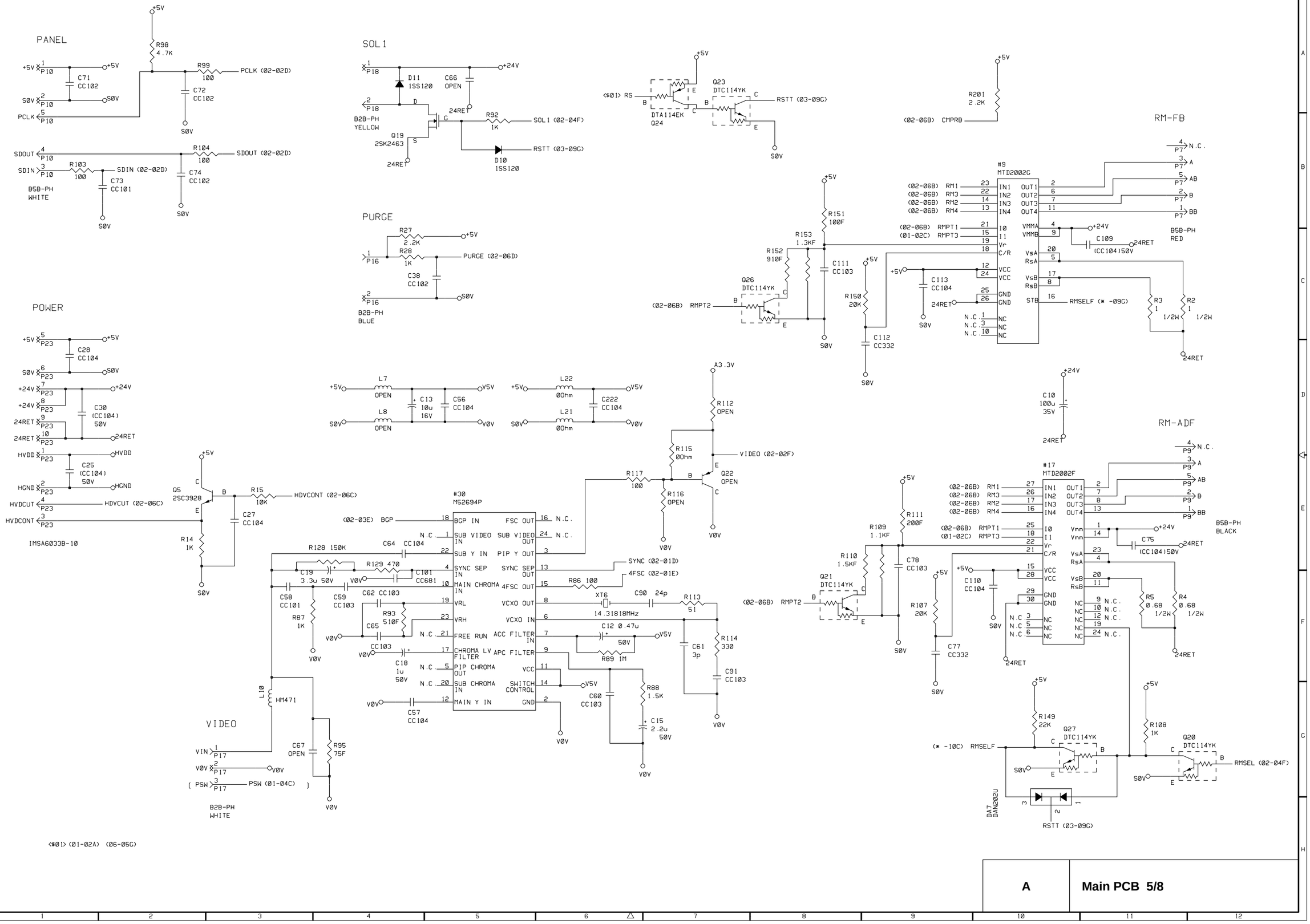
<$02> (01-05F) (02-05B)

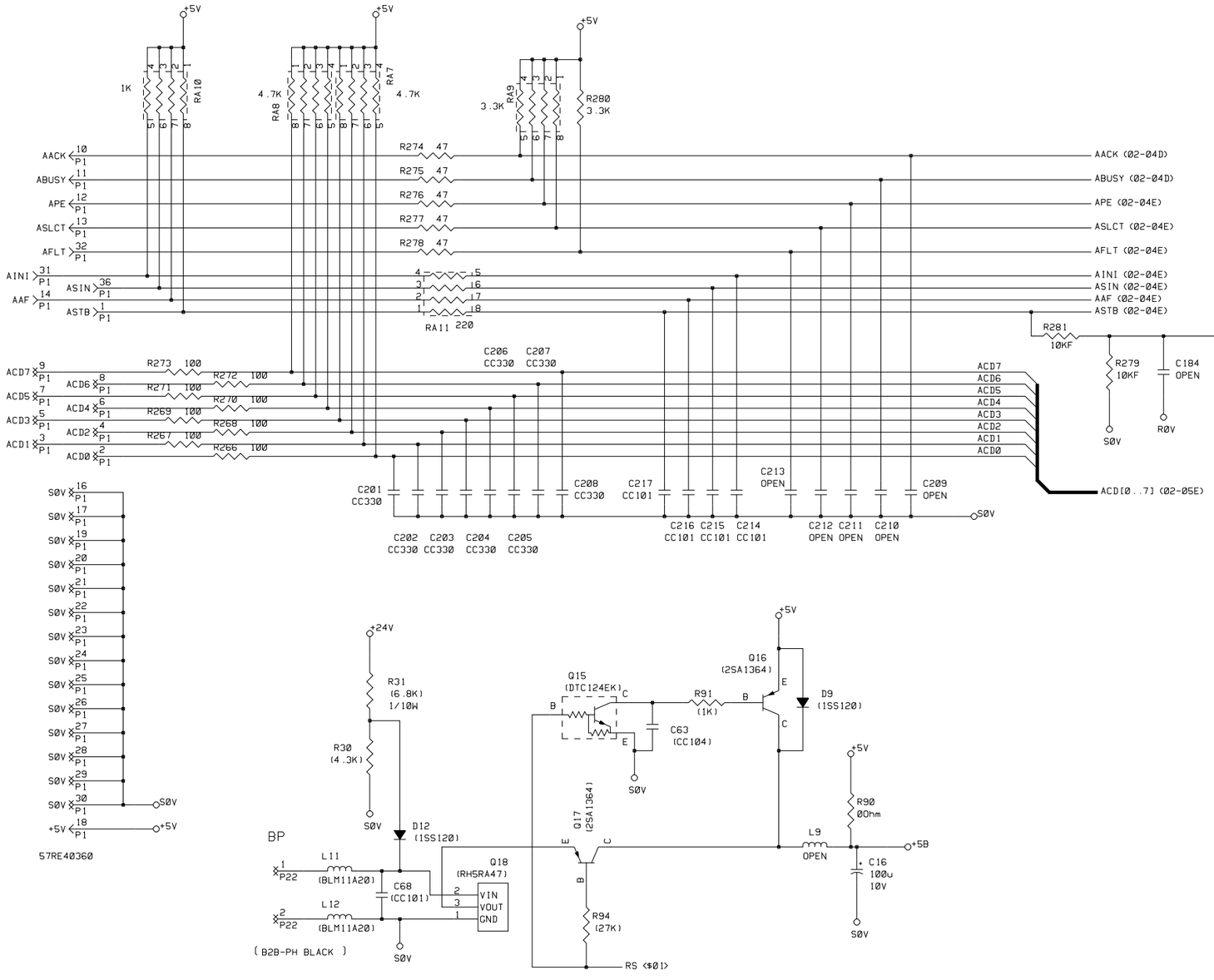
<$03> (* -08F) (* -10C)

<$04> (01-05B) (01-07D)

<$05> (01-05B) (01-07D)

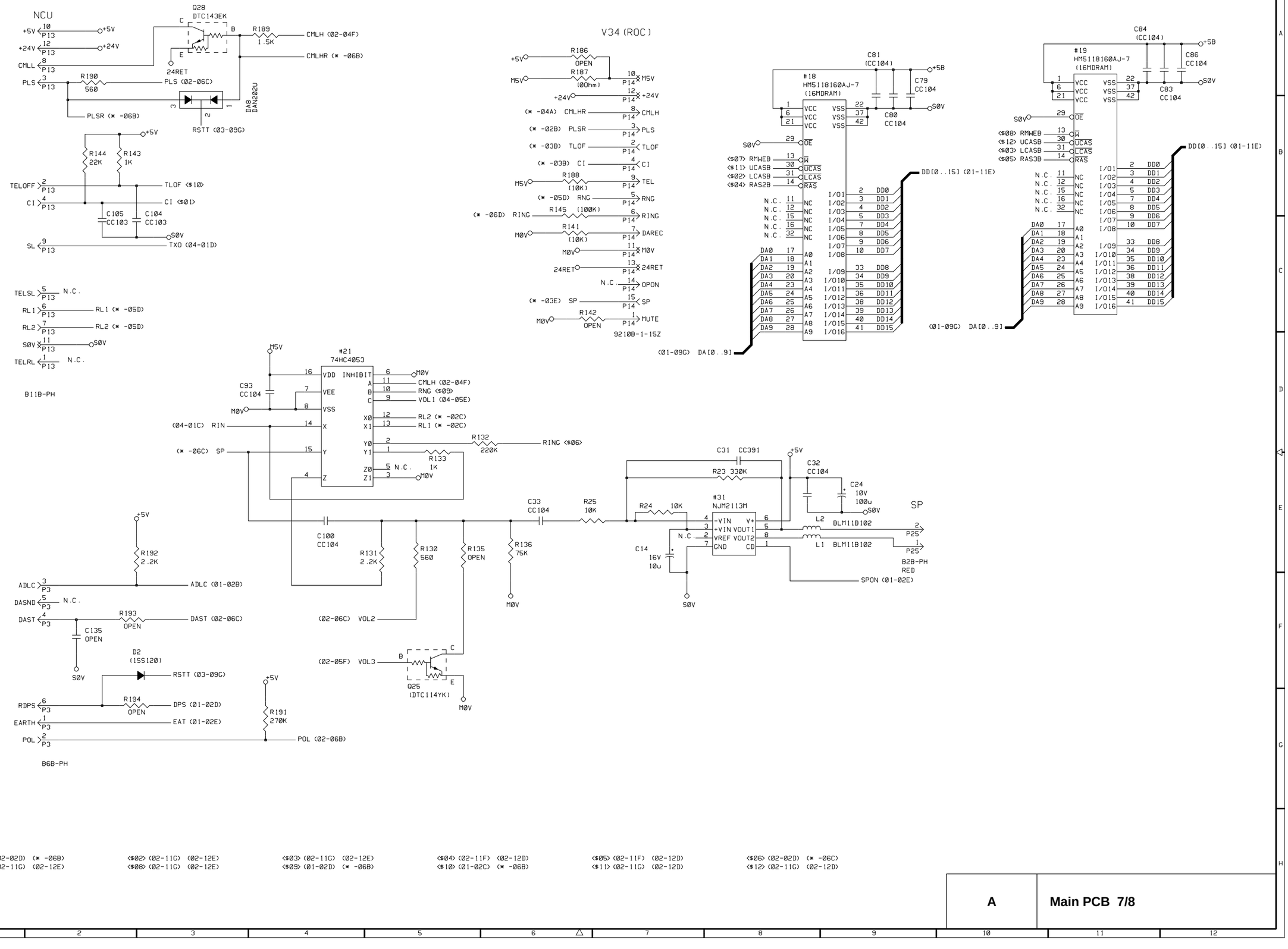
A	Main PCB 4/8

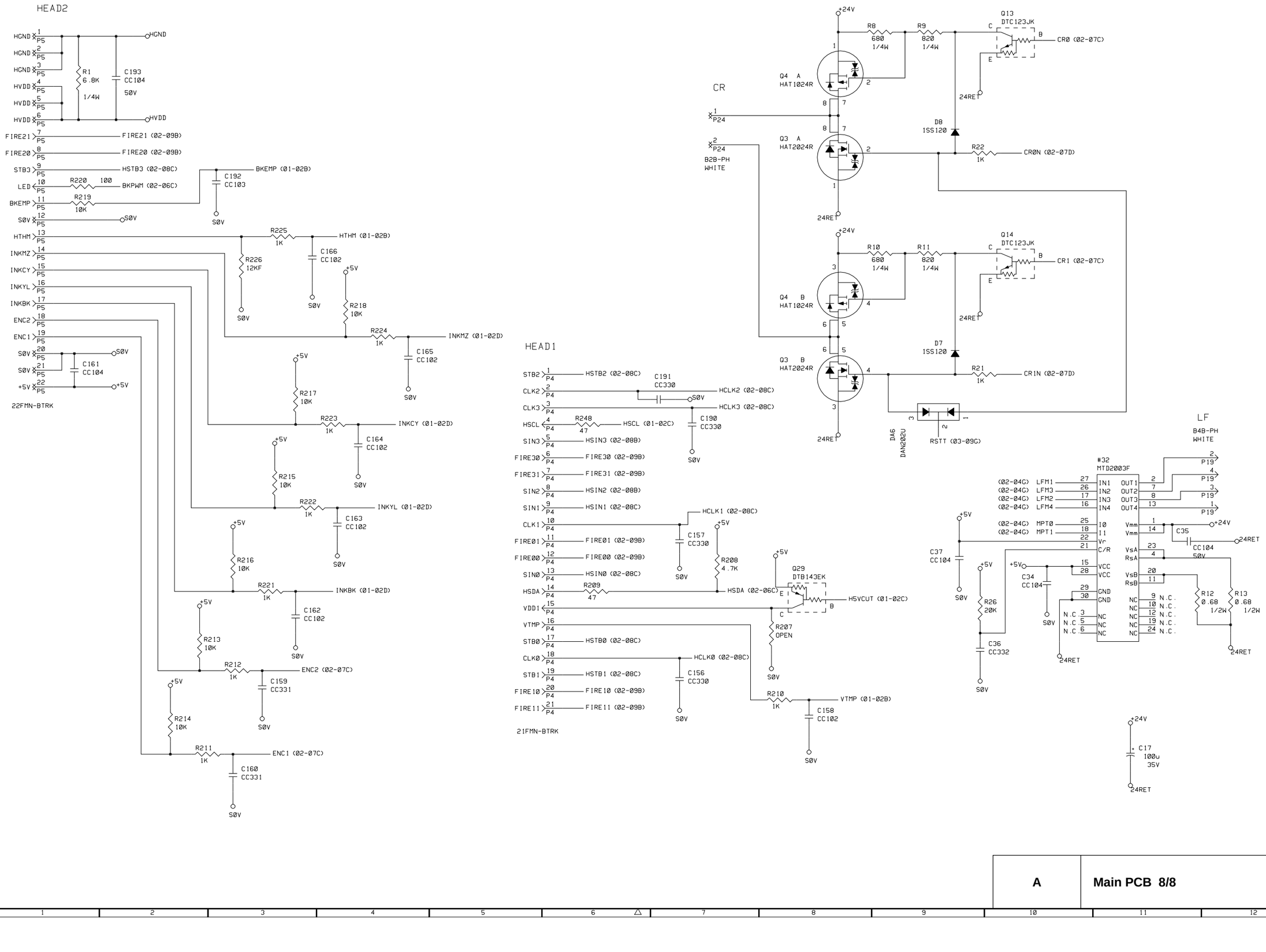

PANEL
R98 4.7K
C71 CC102
C72 CC102
R99 100
PCLK (02-02D)
R104 100
SDOUT (02-02D)
R103 100
SDIN (02-02D)
C73 CC101
C74 CC102
B5B-PH WHITE
SOL 1
D11 1SS120
C66 OPEN
24RET
R92 1K
SOL1 (02-04F)
RSTT (03-09C)
D10 1SS120
Q19 2SK2463
B2B-PH YELLOW
PURGE
R27 2.2K
R28 1K
PURGE (02-06D)
C38 CC102
B2B-PH BLUE
POWER
C28 CC104
C30 (CC104) 50V
C25 (CC104) 50V
HVDD
HGND
HVDCUT (02-06C)
HVDCONT
Q5 2SC3928
R15 10K
C27 CC104
R14 1K
IMSA6033B-10
L7 OPEN
L8 OPEN
C13 10u 16V
C56 CC104
L22 0Ohm
L21 0Ohm
C222 CC104
A3.3V
R112 OPEN
R115 0Ohm
VIDEO (02-02F)
Q22 OPEN
R117 100
R116 OPEN
#30 M52694P
BGP IN
SUB VIDEO IN
SUB Y IN
SYNC SEP IN
MAIN CHROMA IN
VRL
VRH
FREE RUN
CHROMA LV FILTER
PIP CHROMA OUT
SUB CHROMA IN
MAIN Y IN
FSC OUT
SUB VIDEO OUT
PIP Y OUT
SYNC SEP OUT
4FSC OUT
VCXO OUT
VCXO IN
ACC FILTER IN
APC FILTER
VCC
SWITCH CONTROL
GND
R128 150K
C64 CC104
R129 470
C19 3.3u 50V
C101 CC681
C58 CC101
C59 CC103
C62 CC103
R87 1K
R93 510F
C65
C18 1u 50V
CC103
C57 CC104
SYNC (02-01D)
4FSC (02-01E)
R86 100
XT6 14.31818MHz
C90 24p
R113 51
C12 0.47u 50V
R89 1M
C61 3p
R114 330
C91 CC103
R88 1.5K
C60 CC103
C15 2.2u 50V
L10 HM471
C67 OPEN
R95 75F
VIDEO
B2B-PH WHITE
R201 2.2K
CMPRB
Q23 DTC114YK
DTA114EK Q24
RSTT (03-09C)
RM-FB
#9 MTD2002C
R151 100F
R153 1.3KF
R152 910F
C111 CC103
Q26 DTC114YK
RMPT2
R150 20K
C112 CC332
C113 CC104
IN1 IN2 IN3 IN4
OUT1 OUT2 OUT3 OUT4
I0 I1 Vr C/R
VCC VCC
GND GND
VMMA VMMB
VsA RsA VsB RsB
STB
C109 (CC104)50V
B5B-PH RED
RMSELF (* -09G)
R3 1 1/2W
R2 1 1/2W
N.C.
RM-ADF
C10 100u 35V
#17 MTD2002F
R111 200F
R109 1.1KF
R110 1.5KF
Q21 DTC114YK
R107 20K
C78 CC103
C77 CC332
C110 CC104
C75 (CC104)50V
B5B-PH BLACK
R5 0.68 1/2W
R4 0.68 1/2W
R149 22K
Q27 DTC114YK
R108 1K
Q20 DTC114YK
RMSEL (02-04F)
DA7 DAN202U
RSTT (03-09C)
A
Main PCB 5/8



(S01) (02-02A) (02-10F) (02-10G) (03-08E) (05-06A)

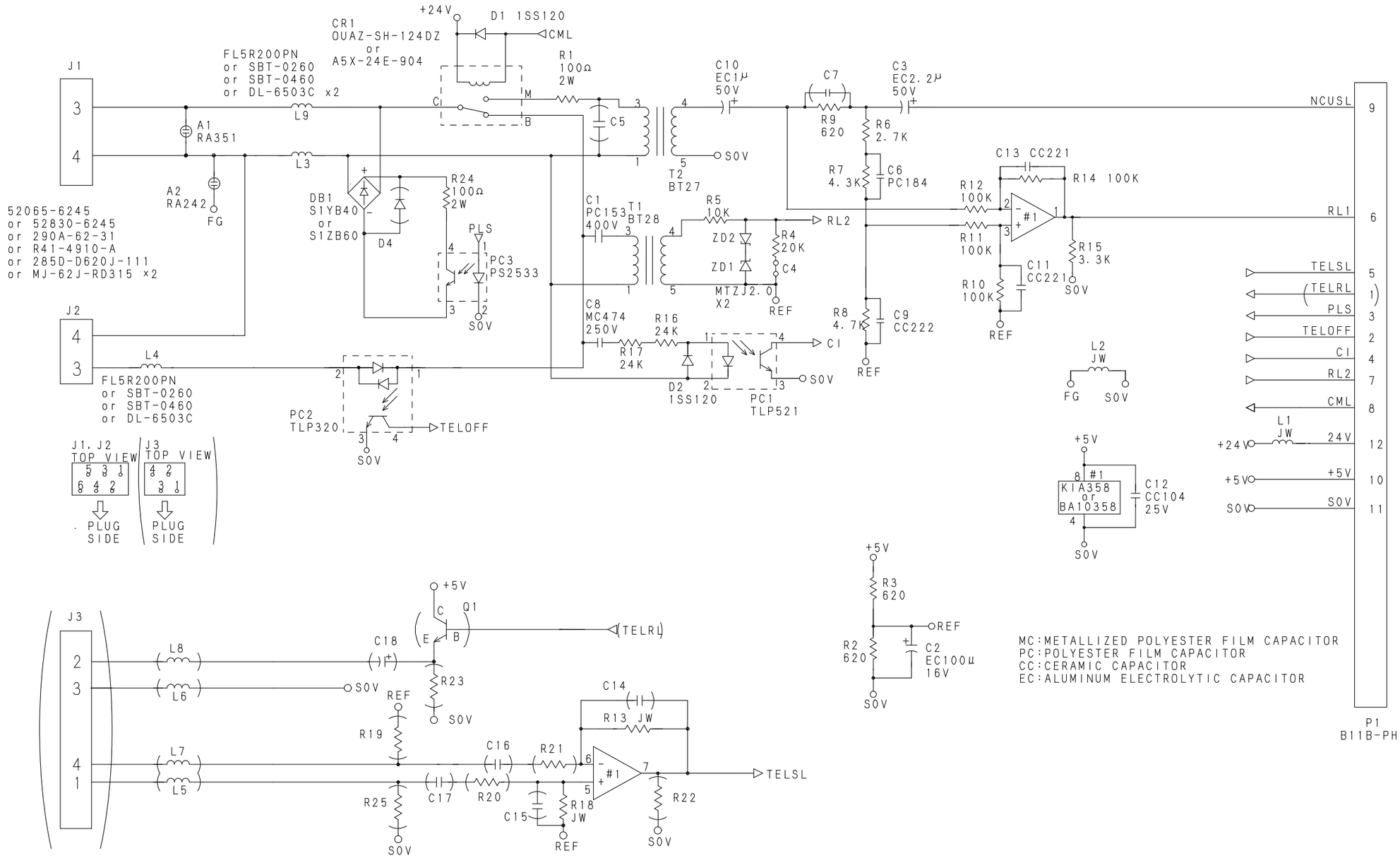
A	Main PCB 6/8


NCU
Q28
DTC143EK
+5V
+24V
CMLL
PLS
PLSR (✖ -06B)
24RET
R189
1.5K
CMLH (02-04F)
CMLHR (✖ -06B)
R190
560
PLS (02-06C)
DA8
DAN202U
RSTT (03-09G)
R144
22K
R143
1K
TELOFF
TLOF (✖10)
CI
CI (✖01)
C105
CC103
C104
CC103
SL
TXO (04-01D)
TELSL
N.C.
RL1
RL1 (✖ -05D)
RL2
RL2 (✖ -05D)
S0V
TELRL
B11B-PH
V34 (ROC)
R186
OPEN
R187
(0Ohm)
M5V
+24V
CMLH
PLS
TLOF
CI
R188
(10K)
TEL
RNG
R145
(100K)
RING
R141
(10K)
DAREC
M0V
24RET
OPEN
SP
R142
MUTE
9210B-1-15Z
#18
HM5118160AJ-7
(16MDRAM)
C81
(CC104)
C79
CC104
C80
CC104
DD[0..15] (01-11E)
(01-09G) DA[0..9]
#19
HM5118160AJ-7
(16MDRAM)
C84
(CC104)
C86
CC104
C83
CC104
+5B
S0V
RMWEB
UCASB
LCASB
RAS3B
#21
74HC4053
M5V
M0V
C93
CC104
(04-01C) RIN
(✖ -06C) SP
CMLH (02-04F)
RNG (✖09)
VOL1 (04-05E)
RL2 (✖ -02C)
RL1 (✖ -02C)
R132
220K
RING (✖06)
R133
1K
N.C.
C33
CC104
R25
10K
R24
10K
#31
NJM2113M
C31
CC391
R23 330K
C32
CC104
C24
10V
100u
L2
BLM11B102
L1
BLM11B102
SP
B2B-PH
RED
SPON (01-02E)
C14
16V
10u
C100
CC104
R131
2.2K
R130
560
R135
OPEN
R136
75K
R192
2.2K
ADLC
ADLC (01-02B)
DASND
N.C.
DAST
DAST (02-06C)
R193
OPEN
C135
OPEN
D2
(1SS120)
RSTT (03-09G)
RDPS
R194
OPEN
DPS (01-02D)
EARTH
EAT (01-02E)
POL
POL (02-06B)
R191
270K
B6B-PH
(02-06C) VOL2
(02-05F) VOL3
Q25
(DTC114YK)
<$01> (02-02D) (✖ -06B)
<$02> (02-11G) (02-12E)
<$03> (02-11G) (02-12E)
<$04> (02-11F) (02-12D)
<$05> (02-11F) (02-12D)
<$06> (02-02D) (✖ -06C)
<$07> (02-11G) (02-12E)
<$08> (02-11G) (02-12E)
<$09> (01-02D) (✖ -06B)
<$10> (01-02C) (✖ -06B)
<$11> (02-11G) (02-12D)
<$12> (02-11G) (02-12D)
A
Main PCB 7/8

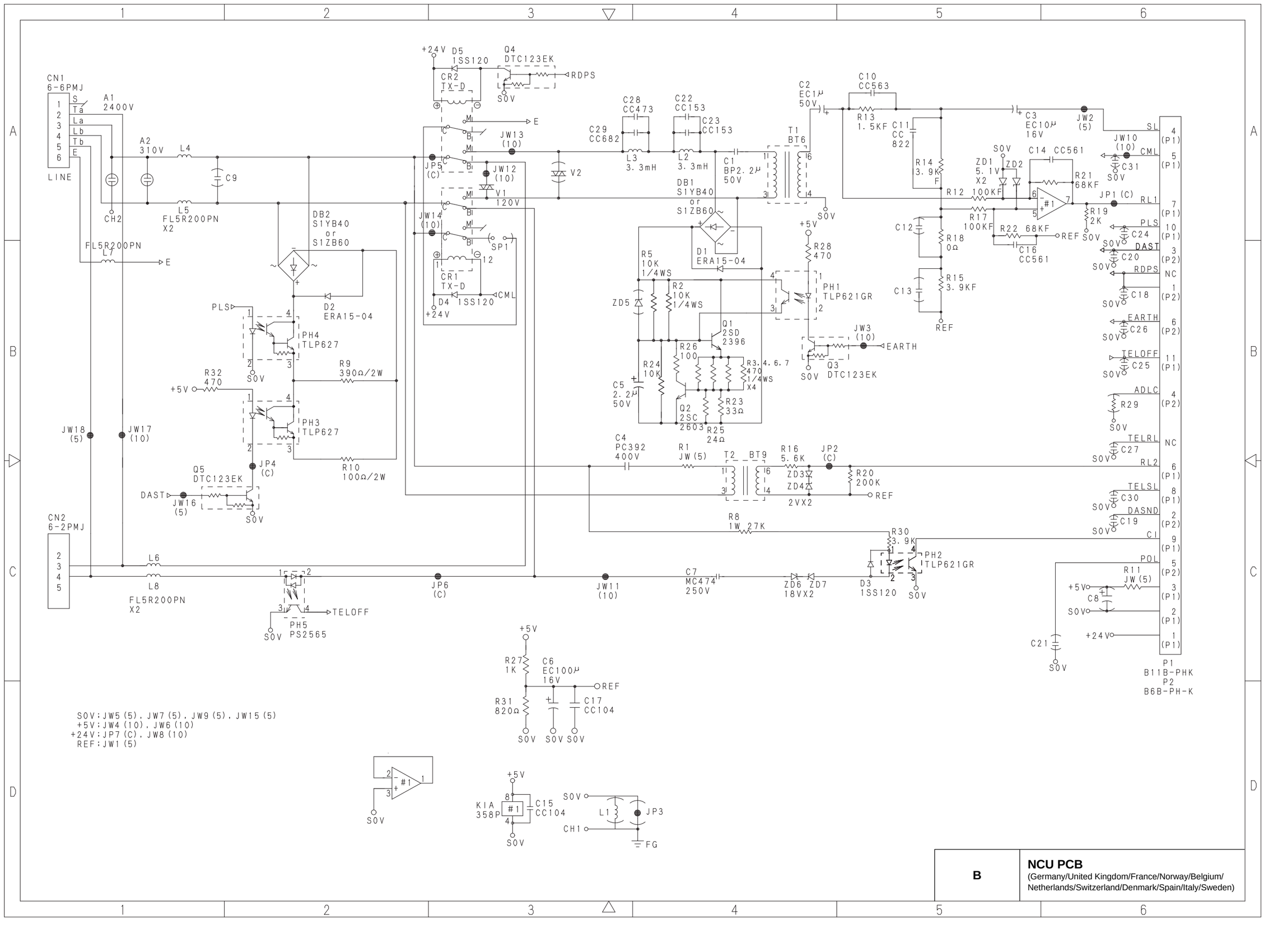

HEAD2
HGND
HVDD
FIRE21
FIRE20
STB3
LED
BKEMP
S0V
HTHM
INKMZ
INKCY
INKYL
INKBK
ENC2
ENC1
+5V
R1 6.8K 1/4W
C193 CC104 50V
R220 100
R219 10K
C192 CC103
R225 1K
R226 12KF
C166 CC102
R218 10K
R224 1K
C165 CC102
C161 CC104
22FMN-BTRK
R217 10K
R223 1K
C164 CC102
R215 10K
R222 1K
C163 CC102
R216 10K
R221 1K
C162 CC102
R213 10K
R212 1K
C159 CC331
R214 10K
R211 1K
C160 CC331
HSTB3 (02-08C)
BKPWM (02-06C)
BKEMP (01-02B)
FIRE21 (02-09B)
FIRE20 (02-09B)
HTHM (01-02B)
INKMZ (01-02D)
INKCY (01-02D)
INKYL (01-02D)
INKBK (01-02D)
ENC2 (02-07C)
ENC1 (02-07C)
HEAD1
STB2
CLK2
CLK3
HSCL
SIN3
FIRE30
FIRE31
SIN2
SIN1
CLK1
FIRE01
FIRE00
SIN0
HSDA
VDD1
VTMP
STB0
CLK0
STB1
FIRE10
FIRE11
C191 CC330
R248 47
C190 CC330
C157 CC330
R208 4.7K
R209 47
C156 CC330
R207 OPEN
R210 1K
C158 CC102
21FMN-BTRK
HSTB2 (02-08C)
HCLK2 (02-08C)
HCLK3 (02-08C)
HSCL (01-02C)
HSIN3 (02-08B)
FIRE30 (02-09B)
FIRE31 (02-09B)
HSIN2 (02-08B)
HSIN1 (02-08C)
HCLK1 (02-08C)
FIRE01 (02-09B)
FIRE00 (02-09B)
HSIN0 (02-08C)
HSDA (02-06C)
HSTB0 (02-08C)
HCLK0 (02-08C)
HSTB1 (02-08C)
FIRE10 (02-09B)
FIRE11 (02-09B)
Q29 DTB143EK
H5VCUT (01-02C)
VTMP (01-02B)
CR
B2B-PH WHITE
Q4 A HAT1024R
Q3 A HAT2024R
Q4 B HAT1024R
Q3 B HAT2024R
+24V
24RET
R8 680 1/4W
R9 820 1/4W
Q13 DTC123JK
CR0 (02-07C)
D8 1SS120
R22 1K
CR0N (02-07D)
R10 680 1/4W
R11 820 1/4W
Q14 DTC123JK
CR1 (02-07C)
D7 1SS120
R21 1K
CR1N (02-07D)
DA6 DAN202U
RSTT (03-09G)
LF
B4B-PH WHITE
#32 MTD2003F
(02-04G) LFM1
(02-04G) LFM3
(02-04G) LFM2
(02-04G) LFM4
(02-04G) MPT0
(02-04G) MPT1
C37 CC104
C34 CC104
C36 CC332
R26 20K
C35 CC104 50V
R12 0.68 1/2W
R13 0.68 1/2W
C17 100u 35V
P19
N.C.

A	Main PCB 8/8

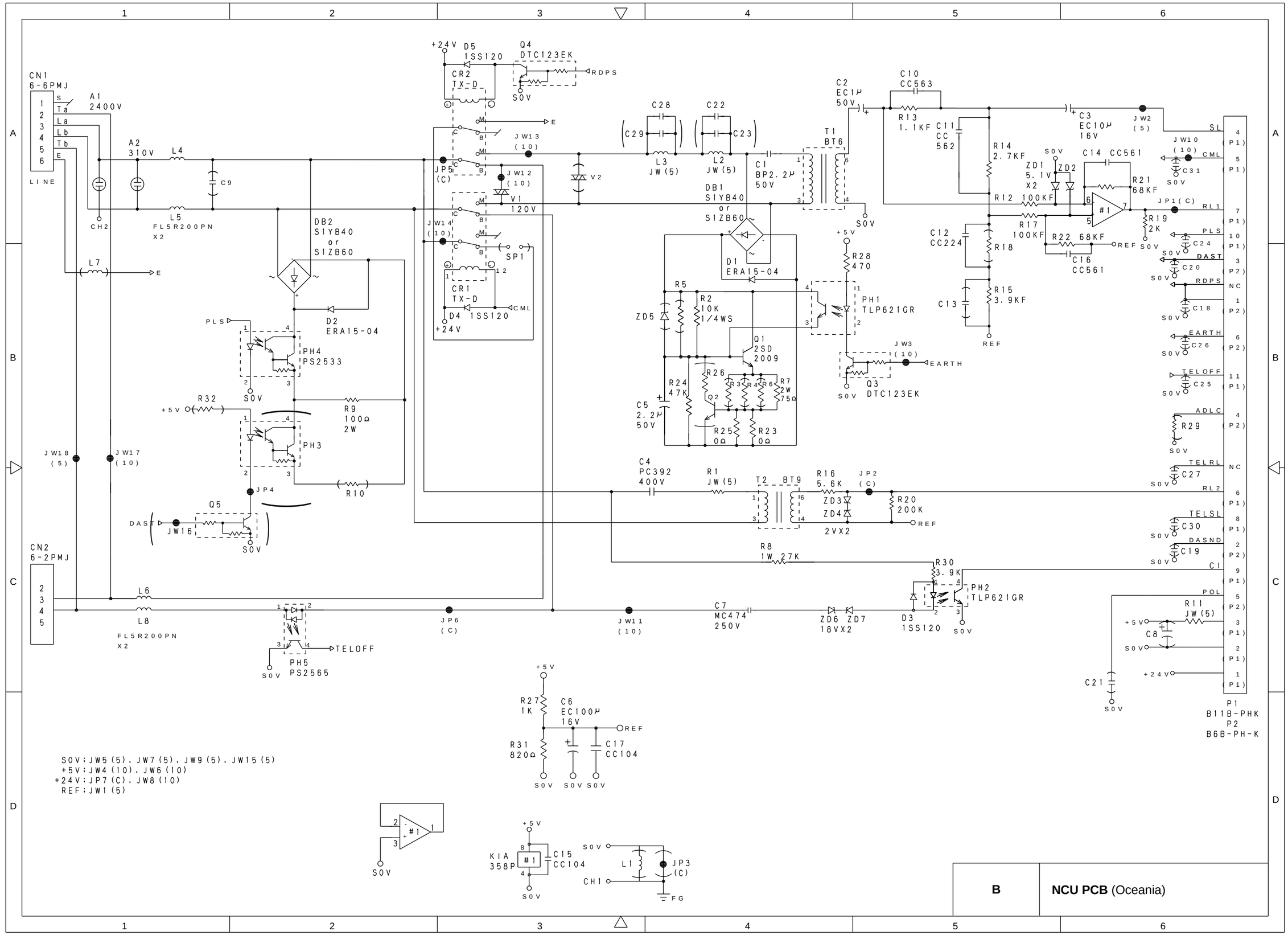
1. 指示ナキ抵抗ノ消費電力ハ1／4Wトスル。
1. UNLESS OTHERWISE SPECIFIED, POWER CONSUMPTION OF RESISTORS IS 1/4W.
2. 指示ナキコンデ゛ンサノ耐圧ハ25V又ハ50Vトスル。
2. UNLESS OTHERWISE SPECIFIED, THE VOLTAGE RESISTANCE OF CAPACITORS IS 25V OR 50V.
3. ( ) 内ノ部品ハ未実装トスル。
3. COMPONENTS IN PARENTHESIS NOT TO BE MOUNTED.



B	**NCU PCB** (U.S.A.)

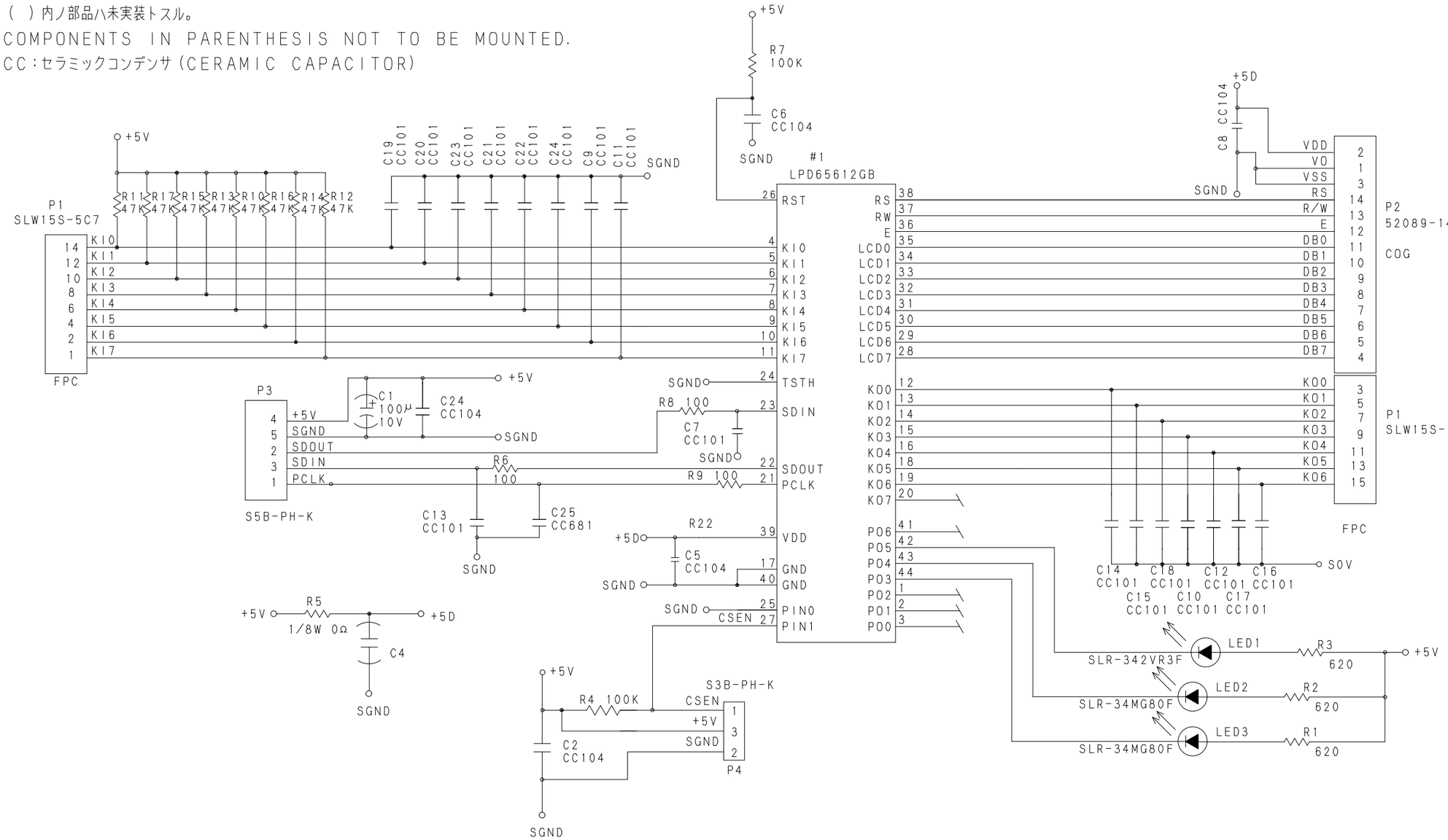


B	**NCU PCB** (Germany/United Kingdom/France/Norway/Belgium/Netherlands/Switzerland/Denmark/Spain/Italy/Sweden)

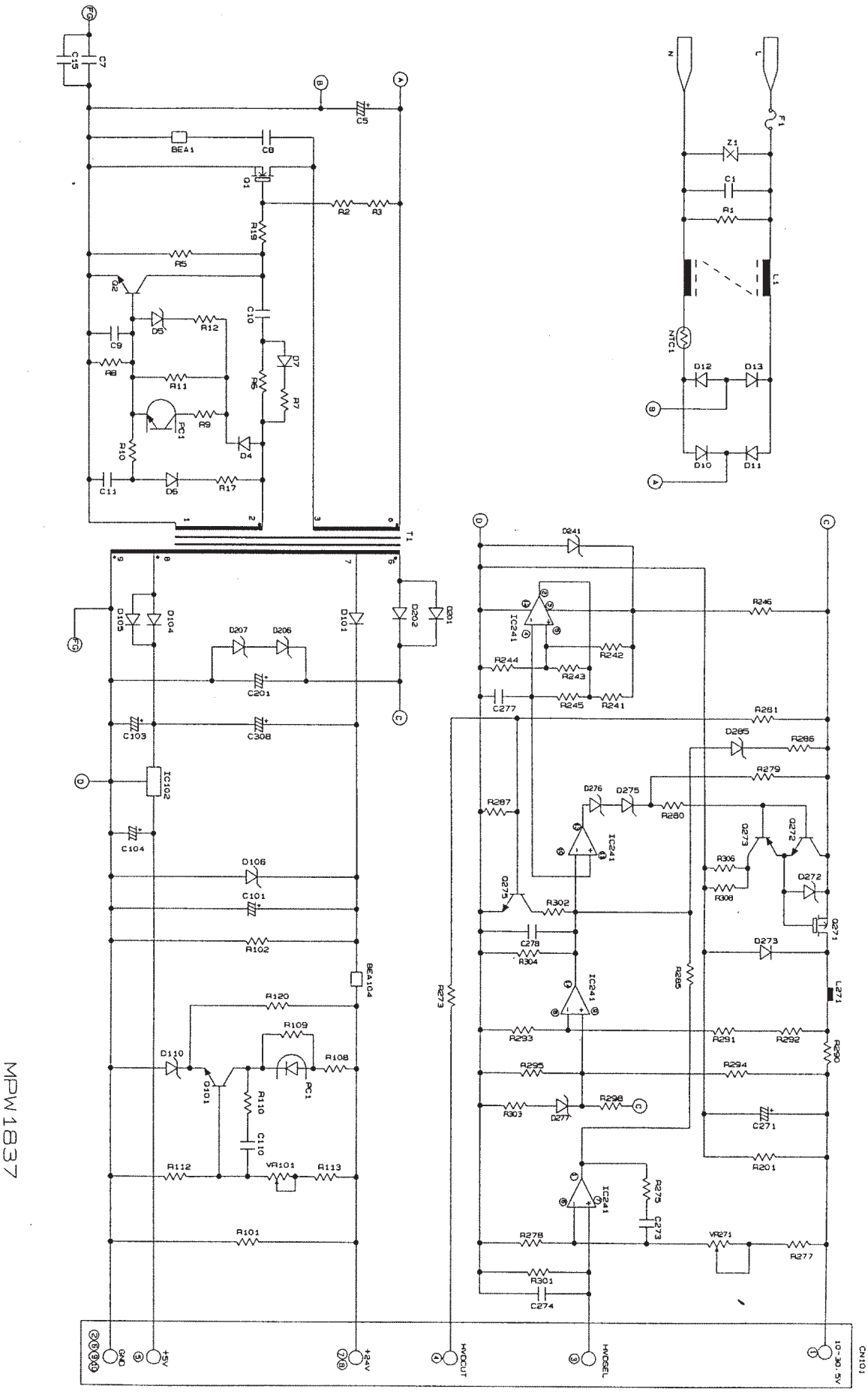


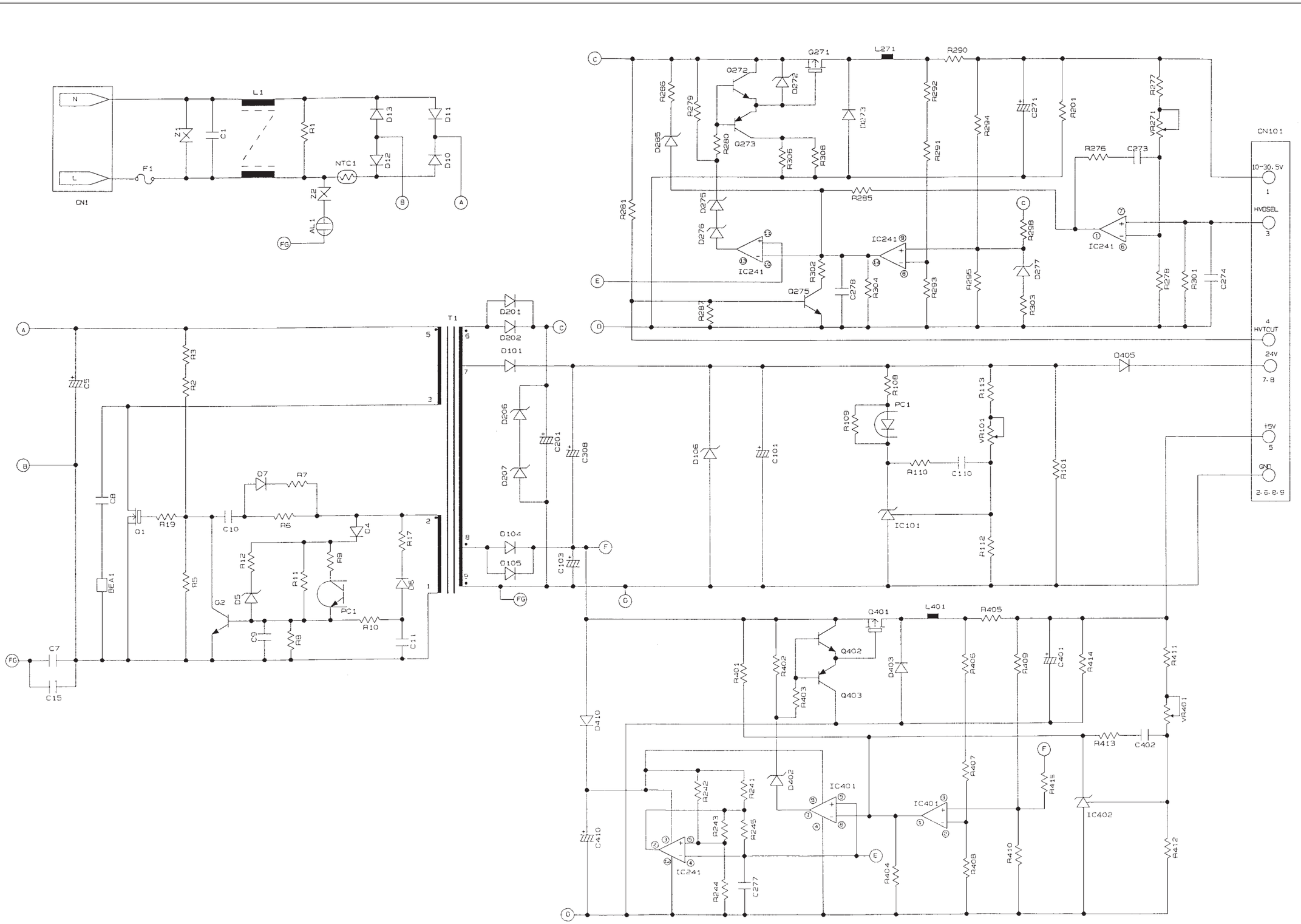
B	**NCU PCB** (Oceania)

1. 指示ナキ抵抗ノ定格電力ハ1／10Wトスル。
1. UNLESS OTHERWISE SPECIFIED, STANDARD ELECTRIC POWER OF RESISTORS IS 1/10W.
2. 指示ナキコンデ゛ンサノ耐圧ハ25V又ハ50Vトスル。
2. UNLESS OTHERWISE SPECIFIED, THE VOLTAGE RESISTANCE OF CAPACITORS IS 25V OR 50V.
3. （ ）内ノ部品ハ未実装トスル。
3. COMPONENTS IN PARENTHESIS NOT TO BE MOUNTED.
4. CC：セラミックコンデンサ（CERAMIC CAPACITOR）



C	Control Panel PCB


MPW1837
D
Power supply
100-120V



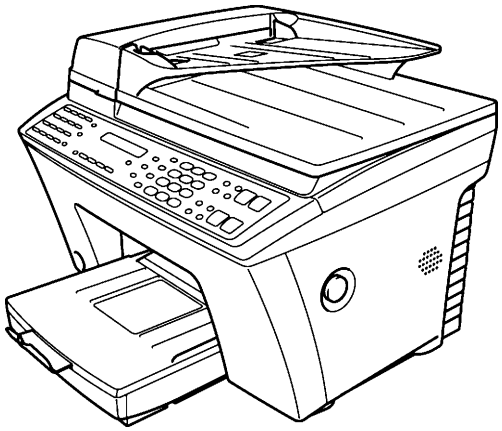
D	**Power supply 200-240 V**

FACSIMILE EQUIPMENT

PARTS REFERENCE LIST

MODEL: MFC760

(For Germany / United Kingdom / France / Norway / Belgium / Netherlands / Switzerland / Denmark / Spain / Italy / Sweden)



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Specifications are subject to change without prior notice.

NOTES FOR USING THIS PARTS REFERENCE LIST

1. In the case of ordering parts, it needs mentioning the following items:
   (1) Code
   (2) Q' ty
   (3) Description

   Note: No orders without Parts Code or Tool No. can be accepted.

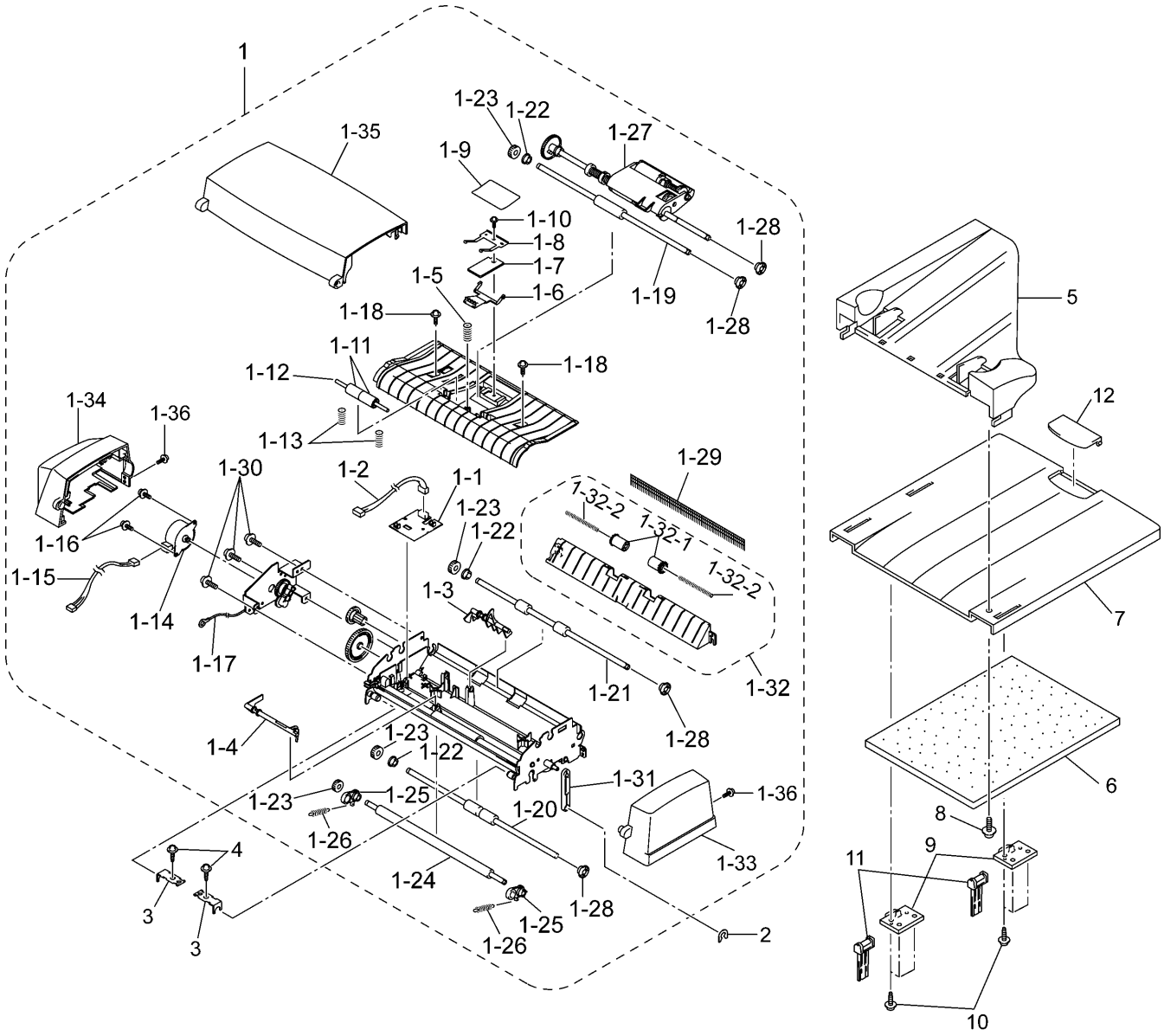
[Example]

REF.NO.	(1) CODE	(2) Q' TY	(3) DESCRIPTION	REMARKS

2. Parts change will be informed by the technical information.

COUNTRIES

Germany ----- GER
United Kingdom ------ UK
France ----- FRA
Norway ----- NOR
Belgium ----- BEL
Netherlands ----- NLD
Switzerland ----- CHE
Denmark ----- DEN
Spain ----- SPA
Italy ----- ITA
Sweden ----- SWE


1
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3
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3
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2
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12
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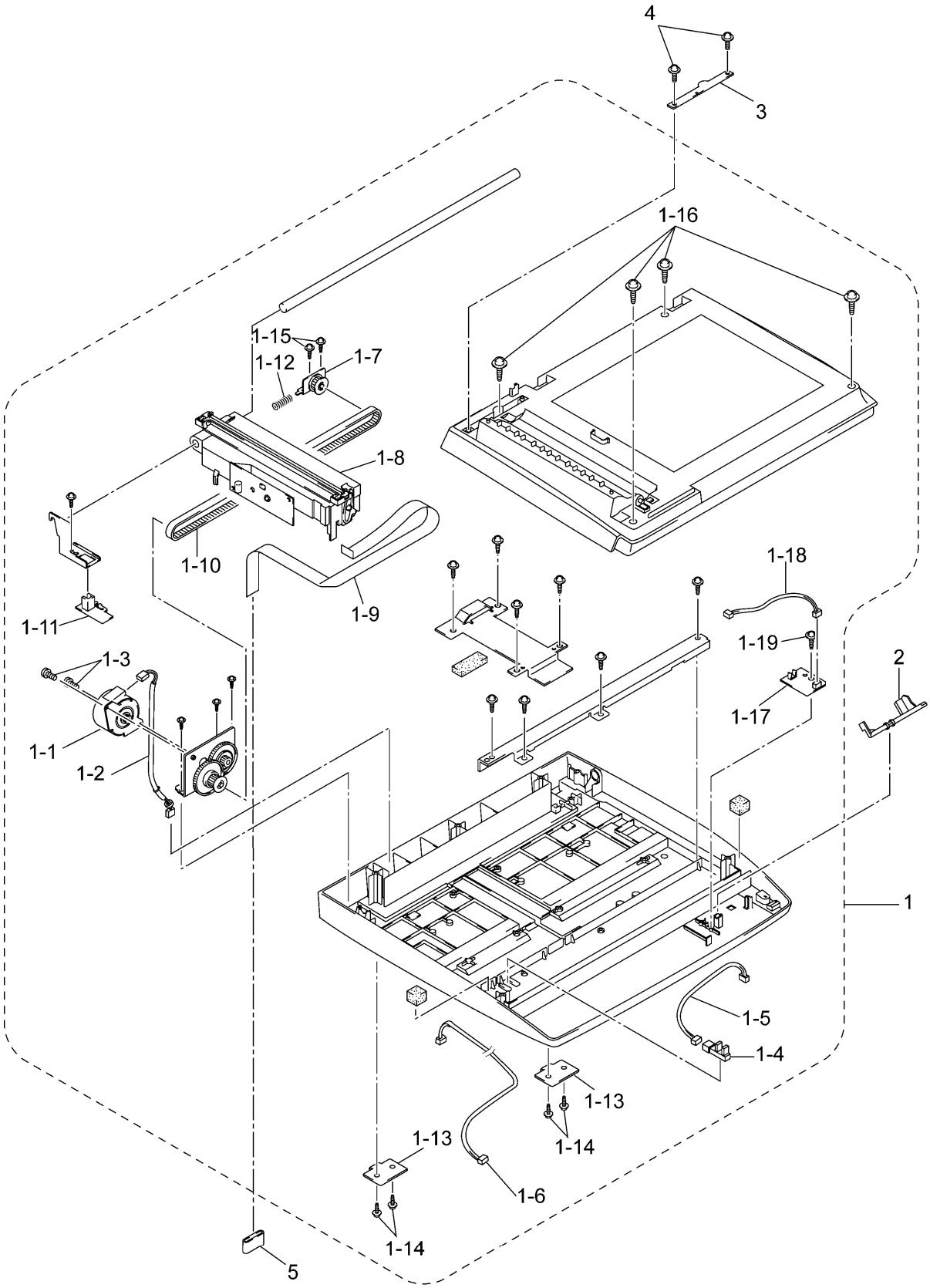
11
10

REF.NO.	CODE	Q'TY	DESCRIPTION	REMARKS
1	LE2005001	1	ADF UNIT	
1-1	UG6609001	1	DOCUMENT SENSOR PCB	
1-2	LG2014001	1	DOCUMENT SENSOR HARNESS	
1-3	UF7026001	1	DOCUMENT FRONT SENSOR ACTUATOR	
1-4	LE2008001	1	DOCUMENT REAR SENSOR ACTUATOR	
1-5	LE2011001	1	COMPRESSION SPRING	
1-6	LE2551001	1	RUBBER HOLDER A	
1-7	UU2055001	1	SEPARATION RUBBER	
1-8	LE2550001	1	SPRING PLATE A	
1-9	LE2470001	1	ADF FILM	
1-10	UF6116001	1	TAPTITE, PAN B M3X6	
1-11	UF9009001	2	PRESSURE ROLLER	
1-12	LE2471001	1	PRESSURE ROLLER SHAFT	
1-13	LE2472001	2	PRESSURE ROLLER SPRING	
1-14	LE2566001	1	ADF MOTOR	
1-15	LG2015001	1	ADF MOTOR HARNESS	
1-16	0A4300605	2	SCREW, PAN (S/P WASHER) M3X6	
1-17	LG2016001	1	GROUNDING WIRE	
1-18	087310815	2	TAPTITE, CUP B M3X8	
1-19	LE2026001	1	UPPER LF ROLLER (GRAY)	
1-20	LE2029001	1	LOWER LF ROLLER (BLACK)	
1-21	LE2028001	1	DOCUMENT EJECTION ROLLER	
1-22	UF8105001	3	CONDUCTIVE BUSHING	
1-23	UU7039001	4	LF ROLLER GEAR 27	
1-24	LE2030001	1	WHITE ROLLER	
1-25	LE2032001	2	WHITE ROLLER BUSHING	
1-26	LE2033001	2	EXTENSION SPRING	
1-27	LE2919001	1	DOCUMENT FEED ROLLER HOLDER ASSY	
(1-27-1)	LE2037001	2	DOCUMENT FEED ROLLER (RUBBER)	
1-28	UU1290001	4	CONDUCTIVE BUSHING	
1-29	UU7505001	1	ANTI-STATIC BRUSH	
1-30	087320616	3	TAPTITE, CUP S M3X6	
1-31	UF0208001	1	ADF ARM	
1-32	LE2048001	1	DOCUMENT EJECTION CHUTE ASSY	
1-32-1	LE2582001	2	PINCH ROLLER	
1-32-2	UU2009001	2	PINCH ROLLER SPRING	
1-33	LE2050001	1	ADF SIDE COVER F, WHITE(1495)	
1-34	LE2051001	1	ADF SIDE COVER R, WHITE(1495)	
1-35	LE2534001	1	ADF COVER ASSY, WHITE(1495)	
1-36	087320816	2	TAPTITE, CUP S M3X8	
2	UF8088001	1	PLASTIC RETAINING RING	
3	LE2053001	2	ADF SUPPORT	
4	087310816	2	TAPTITE, CUP B M3X8	
5	LE2059001	1	DOCUMENT CHUTE, WHITE(1495)	
6	LE2487001	1	DOCUMENT SPONGE	
7	LE2056001	1	DOCUMENT TRAY, WHITE(1495)	
8	087320816	1	TAPTITE, CUP S M3X8	
9	LE2567001	2	HINGE A	
10	087311015	6	TAPTITE, CUP B M3X10	
11	LE2568001	2	HINGE HOLDER A	
12	LE2777001	1	DOCUMENT SUPPORT, WHITE(1495)	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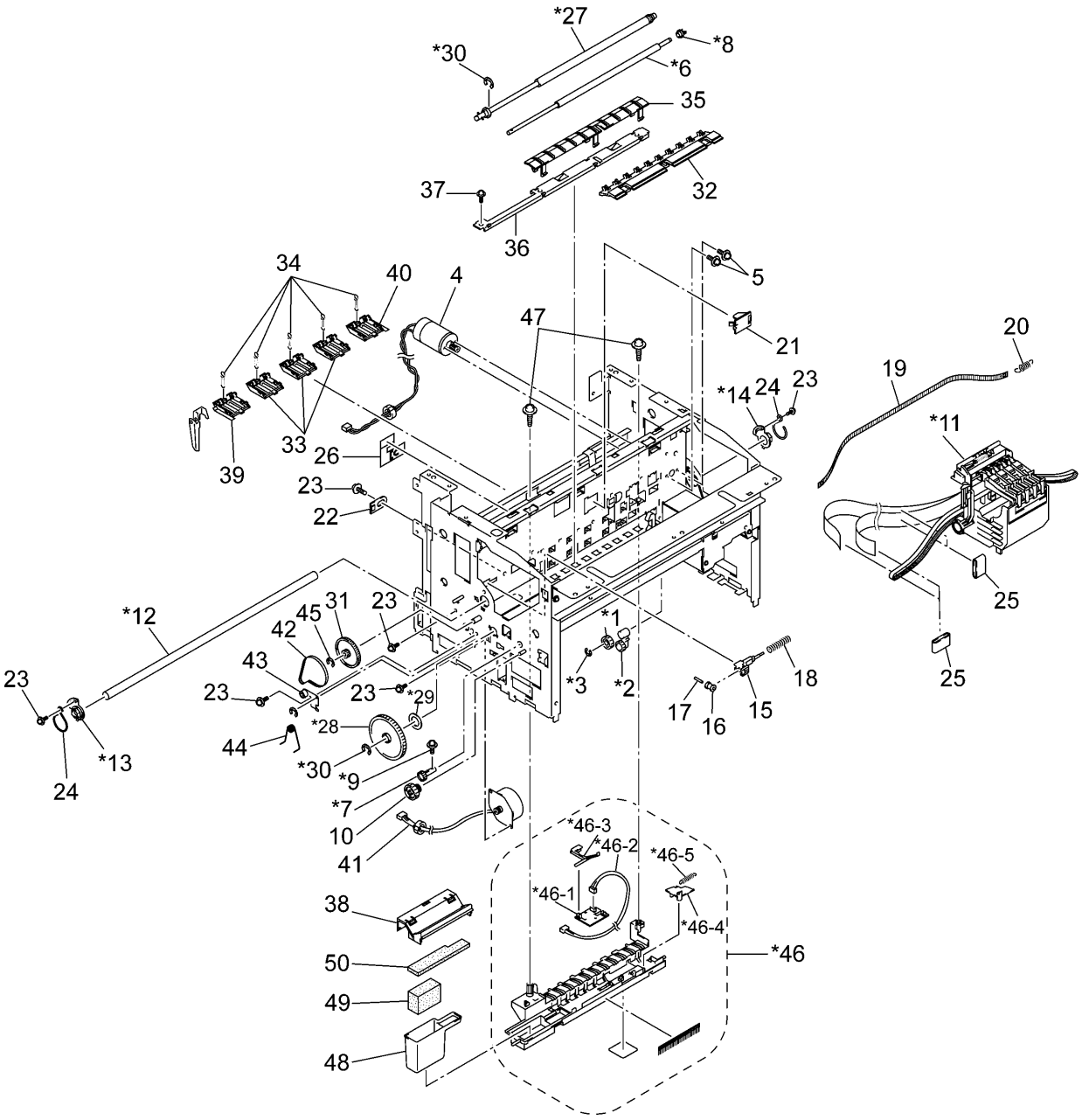
REF.NO.	CODE	Q'TY	DESCRIPTION	REMARKS
1	LE2883001	1	SCANNER UNIT SUPPLY ASSY	
1-1	UU7490001	1	CCD MOTOR	
1-2	LG2017001	1	CCD MOTOR HARNESS	
1-3	0A4300605	2	SCREW, PAN (S/P WASHER) M3X6	
1-4	LG2239001	1	CCD HP SENSOR	
1-5	LG2019001	1	CCD HP SENSOR HARNESS	
1-6	LG2025001	1	PANEL-MAIN HARNESS	
1-7	LE2074001	1	CCD IDLE PULLEY HOLDER ASSY	
1-8	LE2884001	1	CCD UNIT SUPPLY ASSY	
1-9	LG2196001	1	CCD FLAT CABLE	
1-10	LE2297001	1	CCD DRIVE BELT	
1-11	LE2082001	1	CCD LOCK	
1-12	LE2079001	1	COMPRESSION SPRING	
1-13	LE2098001	2	HINGE PLATE	
1-14	085411216	4	TAPTITE, BIND B M4X12	
1-15	LE2805001	2	TAPTITE, PAN B M3X10	
1-16	087411216	4	TAPTITE, CUP B M4X12	
1-17	LG2018001	1	COVER SENSOR PCB	
1-18	LG2137001	1	COVER SENSOR HARNESS	
1-19	087310815	1	TAPTITE, CUP B M3X8	
2	LE2095001	1	COVER SENSOR ACTUATOR	
3	LE2092001	1	HARNESS SUPPORT	
4	087310816	2	TAPTITE, CUP B M3X8	
5	LG2020001	1	FLAT CORE (CCD)	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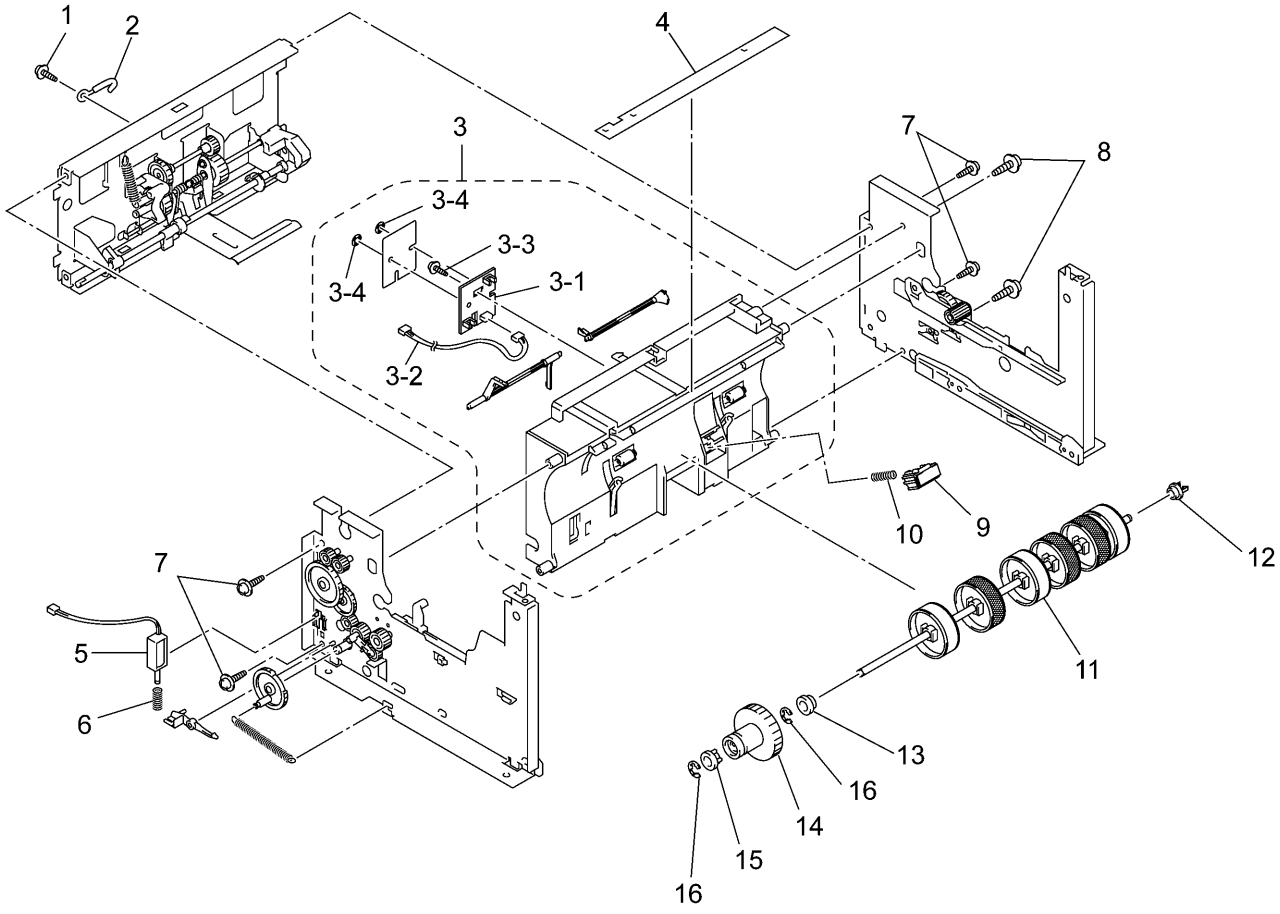
To replace part marked with an asterisk(*), you need the special adjustment jig set. If your service center has no special adjustment jig set, you cannot handle those parts as spare parts.

REF.NO.	CODE	Q'TY	DESCRIPTION	REMARKS
*1	LE2110001	1	IDLE GEAR 23	
*2	LE2111001	1	ARM 12.3 ASSY	
*3	048030345	1	RETAINING RING, E3	
4	UU1042001	1	CARRIAGE MOTOR	
5	0A5300605	2	SCREW, PAN (S/P WASHER) M3X6	
*6	UU1047001	1	PAPER EJECTION ROLLER	
*7	UU1049001	1	PAPER EJECTION ROLLER GEAR	
*8	UU1290001	1	CONDUCTIVE BUSHING	
*9	0A5260805	1	TAPTITE, PAN 2.6X8DB	
10	UU1050001	1	IDLE GEAR EJECTION	
*11	LE0159001	1	CARRIAGE ASSY	
			(SUPPLY ASSY INCLUDING CR DRIVE BELT AND FLAT CABLES)	
*12	UU1077001	1	CARRIAGE RAIL	
*13	UU1078001	1	ECCENTRIC BUSHING L	
*14	UU1079001	1	ECCENTRIC BUSHING R	
15	UU1081001	1	IDLE PULLEY HOLDER	
16	UD6023000	1	IDLE PULLEY	
17	UD6025001	1	IDLE PULLEY SHAFT	
18	LE0010001	1	TENSION SPRING	
19	UD6014001	1	ENCODER STRIP	
20	UD6012001	1	SPRING, EXTENSION	
21	UU1088001	1	FFC HOLDER	
22	UU1286001	1	IDLE PULLEY STOPPER	
23	0A5300805	6	SCREW, PAN (S/P WASHER) M3X8	
24	UU1476001	2	BUSHING LOCK	
25	UG5569000	2	FLAT CORE	
26	UU1459001	1	CORE SUPPORT	
*27	UE2933001	1	PAPER FEED ROLLER	
*28	UU1094001	1	PAPER FEED ROLLER GEAR L	
*29	UU1092001	1	SPACER	
*30	048080345	2	RETAINING RING, E8	
31	UU1428001	1	IDLE GEAR P720	
32	UU1108001	1	STAR WHEEL HOLDER ASSY	
33	LE2759001	3	PAPER PRESSURE HOLDER ASSY	
34	UU1115001	5	PRESSER ROLLER SPRING	
35	UU1116001	1	PLATEN	
36	UU1117001	1	PLATEN FRAME	
37	087320616	1	TAPTITE, CUP S M3X6	
38	UU1315001	1	FLUSHING FOAM GUTTER	
39	LE2760001	1	PAPER PRESSURE HOLDER L	
40	LE2761001	1	PAPER PRESSURE HOLDER R	
41	LE2479001	1	PAPER FEED MOTOR	
42	UU1446001	1	PF DRIVE BELT	
43	UU1450001	1	TENSION PLATE ASSY	
44	UU1444001	1	SPRING	
45	048040345	1	RETAINING RING, E4	
*46	LE2117001	1	LOWER CHUTE ASSY	
*46-1	UG6609001	1	PAPER EJECTION/CASSETTE SENSOR PCB	
*46-2	LG2021001	1	PAPER EJECTION/CASSETTE SENSOR HARNESS	
*46-3	LE2119001	1	PAPER EJECTION SENSOR ACTUATOR	
*46-4	LE2120001	1	CASSETTE SENSOR ACTUATOR	
*46-5	UD4336001	1	ACTUATOR SPRING	
47	087411015	2	TAPTITE, CUP B M4X10	
48	UU1449001	1	FLUSHING FOAMS PACK	
49	UU1199001	2	LOWER FLUSHING FOAM	
50	UU1200001	1	UPPER FLUSHING FOAM	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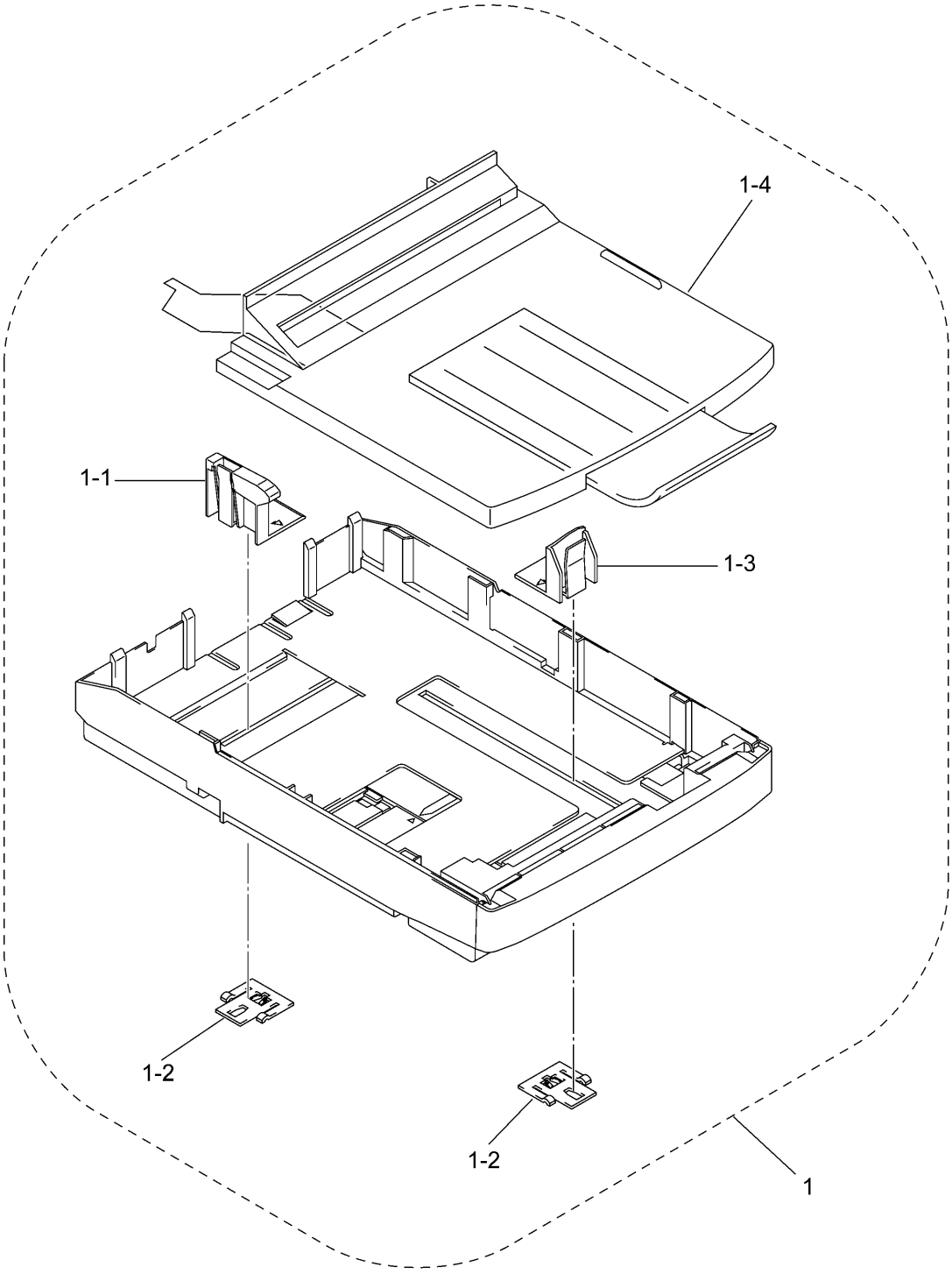
REF.NO.	CODE	Q'TY	DESCRIPTION	REMARKS
1	087320616	1	TAPTITE, CUP S M3X6	
2	LE2489001	1	CABLE CLIP	
3	LE2157001	1	UPPER PAPER CHUTE ASSY	
3-1	UG6609001	1	PAPER WIDTH/REGISTRATION SENSOR PCB	
3-2	LG2022001	1	PAPER WIDTH/REGISTRATION SENSOR HARNESS	
3-3	087270816	1	TAPTITE, CUP B M2.6X8	
3-4	UF0250000	2	PUSH NUT 3	
4	LE2169001	1	CHUTE FILM	
5	LE2481001	1	SOLENOID	
6	UD4319001	1	SOLENOID SPRING	
7	087320616	4	TAPTITE, CUP S M3X6	
8	087311017	2	TAPTITE, CUP B M3X10	
9	LE2208001	1	SEPARATION PAD HOLDER ASSY	
10	LE2211001	1	SEPARATION PAD SPRING	
11	LE2213001	1	PAPER PICK-UP ROLLER ASSY	
12	UU1290001	1	PAWLED BUSHING	
13	UF8105001	1	CONDUCTIVE BUSHING	
14	LE2220001	1	PAPER PICK-UP ROLLER GEAR ASSY	
15	LE2482001	1	COLLAR STOPPER	
16	048050346	2	RETAINING RING, E5	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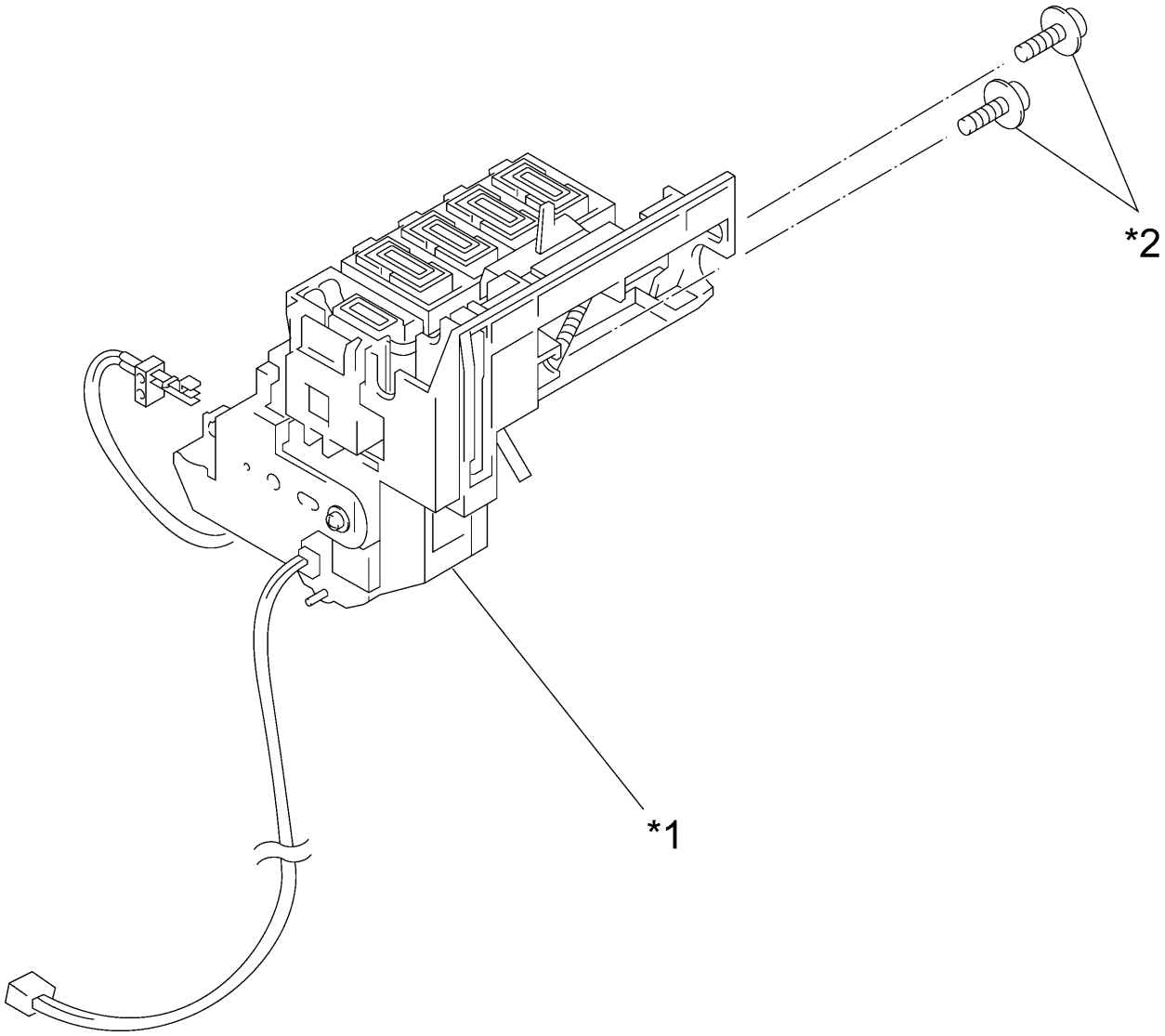
REF.NO.	CODE	Q'TY	DESCRIPTION	REMARKS
1	LE2228001	1	PAPER CASSETTE ASSY	
1-1	LE2234001	1	SIDE PAPER GUIDE	
1-2	LE2235001	2	GUIDE STOPPER	
1-3	LE2236001	1	FRONT PAPER GUIDE	
1-4	LE2239001	1	CASSETTE COVER	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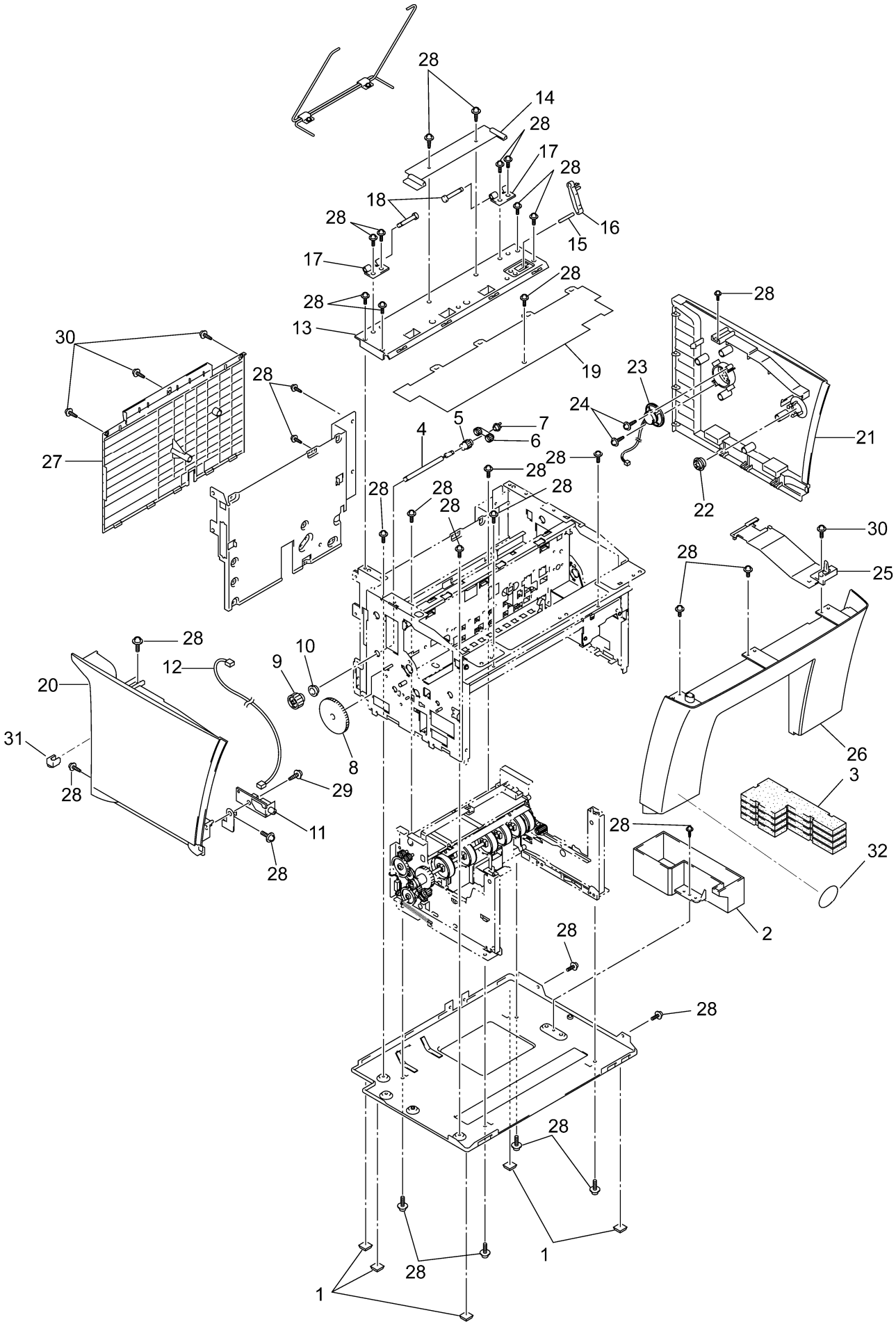
To replace part marked with an asterisk(*), you need the special adjustment jig set. If your service center has no special adjustment jig set, you cannot handle those parts as spare parts.

REF.NO.	CODE	Q'TY	DESCRIPTION	REMARKS
*1	LE2242001	1	PURGE UNIT ASSY	
*2	0A5300605	2	SCREW, PAN (S/P WASHER) M3X6	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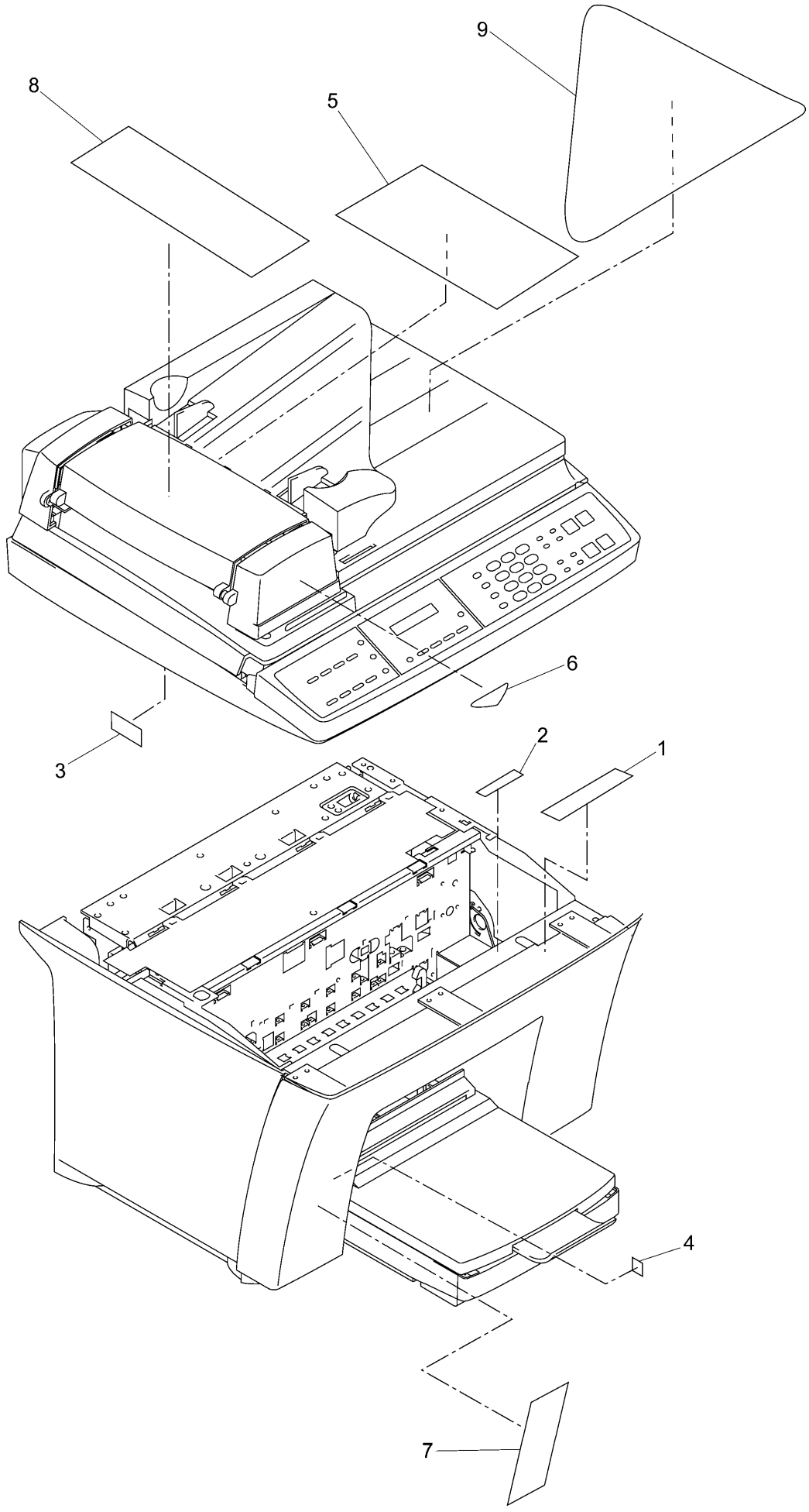
REF.NO.	CODE	Q'TY	DESCRIPTION	REMARKS
1	UL5600001	5	RUBBER FOOT	
2	LE2246001	1	DRAIN TANK	
3	UU1198001	4	INK ABSORBER	
4	LE2223001	1	PAPER FEED SHAFT ASSY	
5	LE2225001	1	GEAR M0.5/25	
6	LE2226001	1	ONE WAY ARM ASSY	
7	UU1290001	1	CONDUCTIVE BUSHING	
8	LE2221001	1	IDLE GEAR	
9	LE2222001	1	GEAR M0.6/25	
10	UF0022000	1	BUSHING	
11	UG5717001	1	VC CONNECTOR PCB ASSY FOR GER/UK/NOR/BEL/NLD/CHE/DEN/SPA/ITA/SWE	
12	LG2195001	1	VC HARNESS FOR GER/UK/NOR/BEL/NLD/CHE/DEN/SPA/ITA/SWE	
13	LE2248001	1	REAR FRAME	
14	LE2577001	1	TORSION BAR SUPPORT	
15	LE2773001	1	LINK SHAFT	
16	LE2758001	1	LINK	
17	LE2252001	2	HINGE PLATE	
18	LE2253001	2	PIVOT PIN	
19	LE2545001	1	COVER SHEET	
20	LE2260001	1	SIDE COVER L, WHITE(1495)	
21	LE2263001	1	SIDE COVER R, WHITE(1495)	
22	LE2264001	1	OPEN BUTTON	
23	LG2187001	1	SPEAKER	
24	UU1225001	2	TAPTITE, CUP B M4X10	
25	LE2265001	1	INNER COVER, WHITE(1495)	
26	LE2266001	1	FRONT COVER, WHITE(1495)	
27	LE2499001	1	REAR COVER, WHITE(1495)	
28	087320616	32	TAPTITE, CUP S M3X6	
29	087310815	1	TAPTITE, CUP B M3X8 FOR GER/UK/NOR/BEL/NLD/CHE/DEN/SPA/ITA/SWE	
30	087321016	4	TAPTITE, CUP S M3X10	
31	UF5745000	1	MJ COVER, EXT FOR FOR GER/UK/FRA/BEL/NLD/DEN/ITA/SWE	
32	LE2778001	1	VIDEO CAPTURE COVER SEAL FOR FRA	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REF.NO.	CODE	Q'TY	DESCRIPTION	REMARKS
1	UU1235001	1	INK REPLACEMENT INSTRUCTION LABEL	
2	UU1236001	1	HEAD GAP ADJUSTMENT INSTRUCTION LABEL	
4	LE2859001	1	PAPER JAM CLEARANCE INSTRUCTION LABEL	
5	UU0456001	1	PROTECTION PAPER	
6	LE2498001	1	COLOR MARK	
7	UU1351001	1	VIDEO MYLAR LABEL BY2, EUR	
			FOR GER/UK/NOR/BEL/NLD/CHE/DEN/SPA/ITA/SWE	
8	LE2501003	1	MYLAR LABEL 760 FOR GER	
8	LE2501004	1	MYLAR LABEL 760 FOR UK/CHE	
8	LE2501005	1	MYLAR LABEL 760 FOR FRA	
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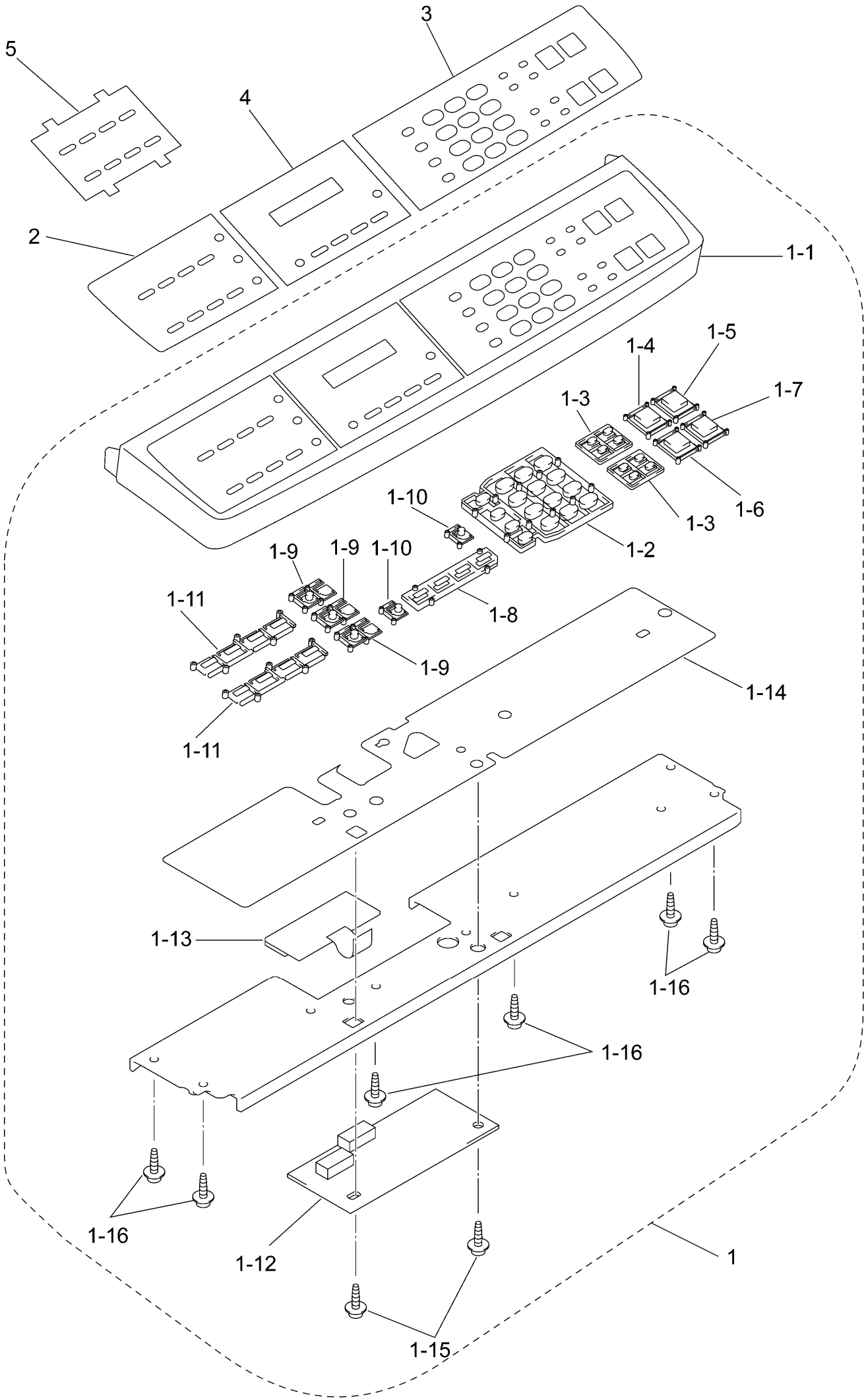
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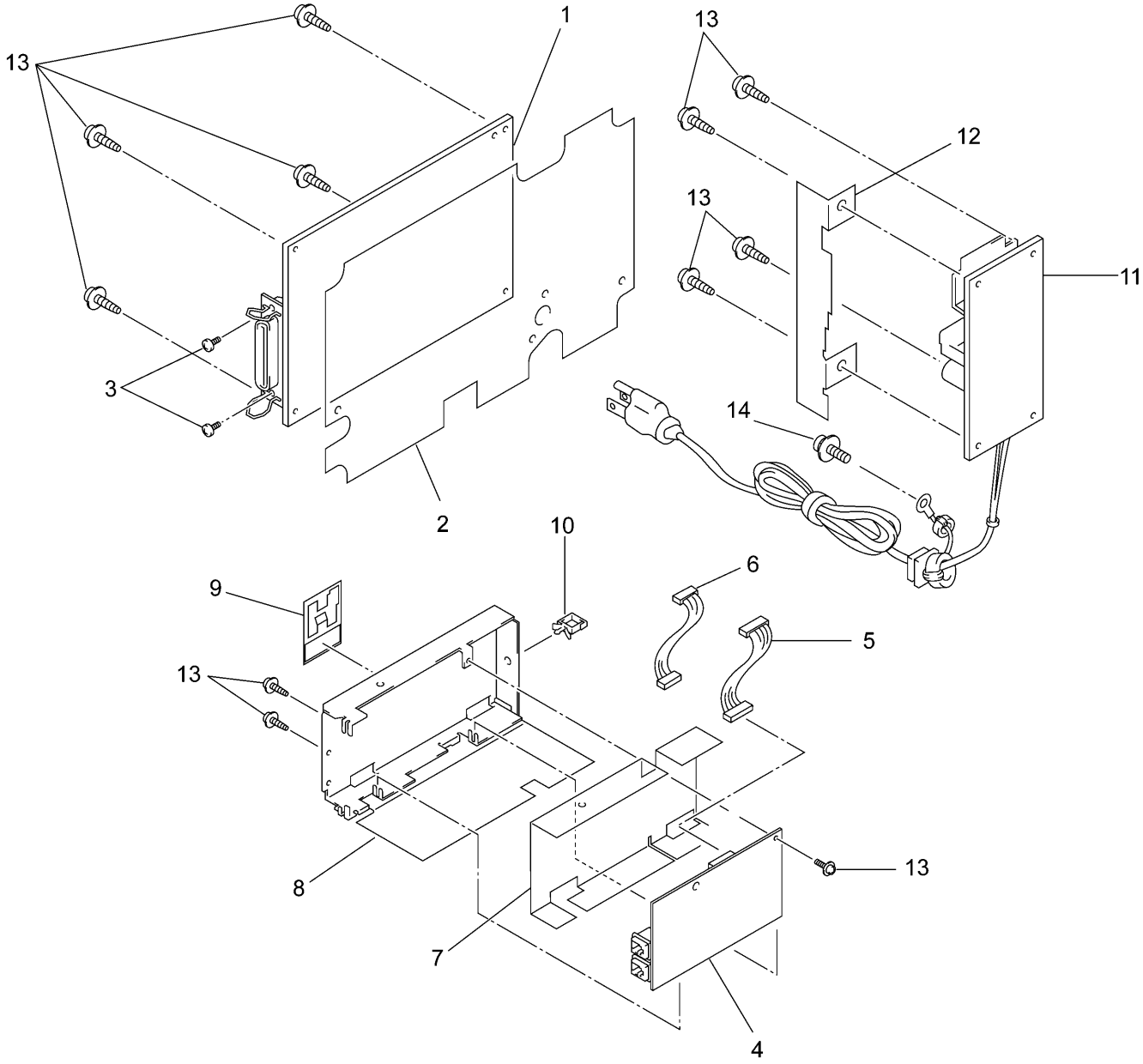
REF.NO.	CODE	Q'TY	DESCRIPTION	REMARKS
1	LE2272001	1	CONTROL PANEL ASSY, WHITE(1495)	
1-1	LE2273001	1	CONTROL PANEL, WHITE(1495)	
1-2	UF4393007	1	KEY, TEN, WHITE(1495)	
1-3	LE2274001	2	KEY, COPY/FAX AREA, WHITE(1495)	
1-4	UF8174008	1	KEY, MONO COPY, WHITE(1495)	
1-5	UF8174009	1	KEY, COLOR COPY, GREEN(5159)	
1-6	UF8174010	1	KEY, STOP, PINK(2205)	
1-7	UF8174011	1	KEY, START, PURPLE(6255)	
1-8	UF8176009	1	KEY, FUNCTION4, GRAY(1509)	
1-9	UF4576008	3	KEY, SHIFT, WHITE(1495)	
1-10	UF4576010	2	KEY, SHIFT, GRAY(1509)	
1-11	UF9118006	2	KEY, ONE TOUCH, WHITE(1495)	
1-12	LG2138001	1	CONTROL PANEL PCB ASSY	
1-13	UG4552000	1	LCD	
1-14	LG2190001	1	FPC KEY ASSY	
1-15	087270815	2	TAPTITE, CUP B M2.6X8	
1-16	087310615	6	TAPTITE, CUP B M3X6	
2	LE2508001	1	PANEL SHEET-1 FOR GER	
2	LE2277001	1	PANEL SHEET-1 FOR UK/BEL/NLD/CHE	
2	LE2514001	1	PANEL SHEET-1 FOR FRA	
2	LE2811001	1	PANEL SHEET-1 FOR NOR	
2	LE2814001	1	PANEL SHEET-1 FOR DEN	
2	LE2817001	1	PANEL SHEET-1 FOR SPA	
2	LE2820001	1	PANEL SHEET-1 FOR ITA	
2	LE2823001	1	PANEL SHEET-1 FOR SWE	
3	LE2509001	1	PANEL SHEET-2 FOR GER	
3	LE2512001	1	PANEL SHEET-2 FOR UK/BEL/NLD/CHE	
3	LE2515001	1	PANEL SHEET-2 FOR FRA	
3	LE2812001	1	PANEL SHEET-2 FOR NOR	
3	LE2815001	1	PANEL SHEET-2 FOR DEN	
3	LE2818001	1	PANEL SHEET-2 FOR SPA	
3	LE2821001	1	PANEL SHEET-2 FOR ITA	
3	LE2824001	1	PANEL SHEET-2 FOR SWE	
4	LE2510001	1	LCD SHEET FOR GER	
4	LE2513001	1	LCD SHEET FOR UK/BEL/NLD/CHE	
4	LE2516001	1	LCD SHEET FOR FRA	
4	LE2813001	1	LCD SHEET FOR NOR	
4	LE2816001	1	LCD SHEET FOR DEN	
4	LE2819001	1	LCD SHEET FOR SPA	
4	LE2822001	1	LCD SHEET FOR ITA	
4	LE2825001	1	LCD SHEET FOR SWE	
5	LE2280001	1	ADDRESS LABEL	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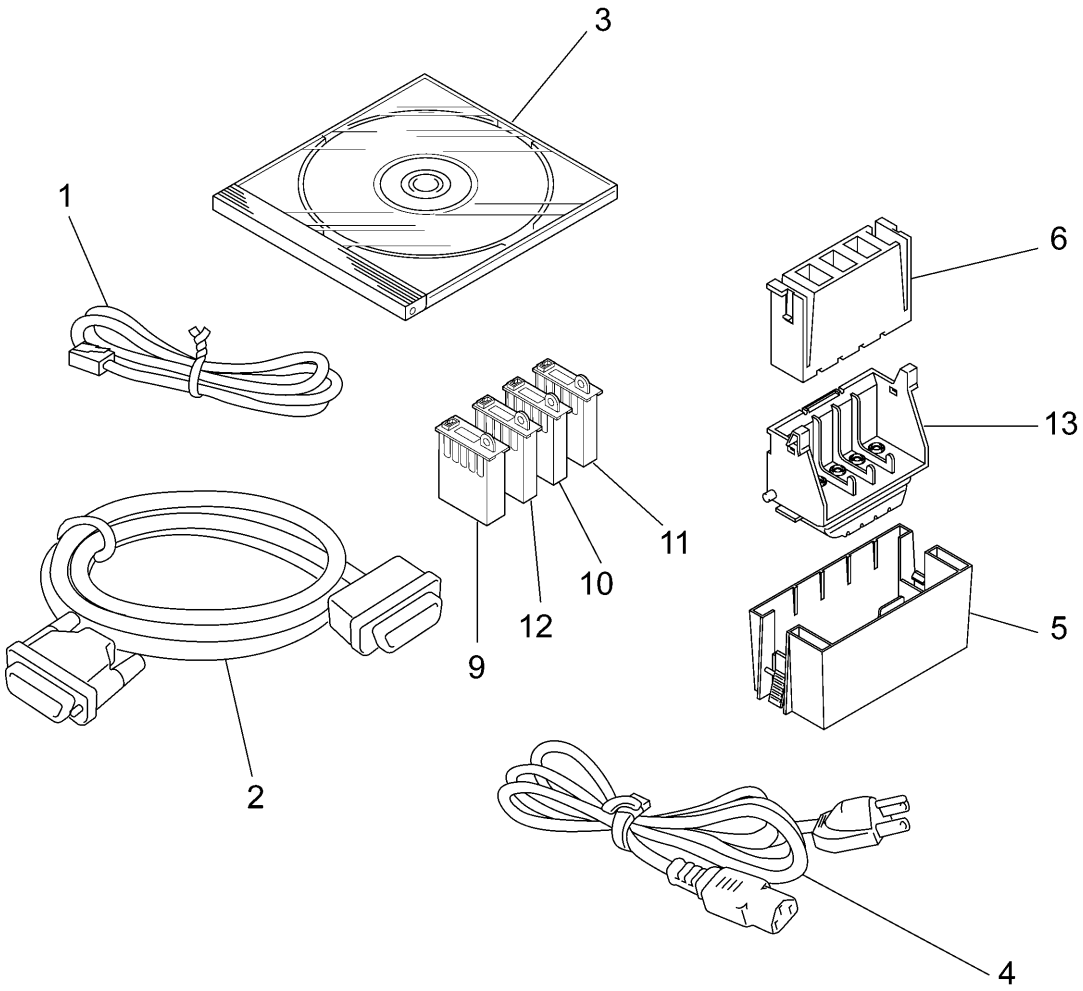
REF.NO.	CODE	Q'TY	DESCRIPTION	REMARKS
1	LG2233001	1	MAIN PCB ASSY	
2	LE2258001	1	INSULATION FILM (MAIN)	
3	002300615	2	SCREW, PAN M3X6	
4	LG2295001	1	NCU PCB ASSY	
5	LG2140001	1	NCU MAIN HARNESS	
6	LG2231001	1	NCU MAIN HARNESS 2	
7	LE2257001	1	INSULATION FILM (NCU)	
8	LE2484001	1	INSULATION FILM 2 (NCU)	
9	LE2543001	1	CORE SUPPORT	
10	UG4163000	1	CABLE CLAMP	
11	UG5573001	1	POWER SUPPLY PCB (EXCLUDING AC CORD)	
12	LE2483001	1	INSULATION FILM (POWER SUPPLY)	
13	087320616	11	TAPTITE, CUP S M3X6	
14	UF6559001	1	SCREW, PAN (WASHER) M4X8DB	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REF.NO.	CODE	Q'TY	DESCRIPTION	REMARKS
1	UG3565001	1	TELEPHONE LINE CORD FOR GER	
1	UG3626001	1	TELEPHONE LINE CORD FOR UK	
1	UG3627001	1	TELEPHONE LINE CORD FOR FRA	
1	UG3290001	1	TELEPHONE LINE CORD FOR NOR	
1	UG1575001	1	TELEPHONE LINE CORD FOR BEL	
1	UG3631001	1	TELEPHONE LINE CORD FOR NLD	
1	UG3469001	1	TELEPHONE LINE CORD FOR CHE	
1	UG3633001	1	TELEPHONE LINE CORD FOR DEN	
1	UG3634001	1	TELEPHONE LINE CORD FOR ITA	
1	UG3635001	1	TELEPHONE LINE CORD FOR SWE	
1	UG1570001	1	TELEPHONE LINE CORD FOR SPA	
2	UG4558001	1	INTERFACE CABLE FOR GER/UK	
3	LE2502001	1	CD-ROM ASSY	
4	LG2085001	1	AC CORD FOR GER/FRA/NOR/BEL/NLD/SPA/ITA/SWE	
4	LG2086001	1	AC CORD FOR UK	
4	LG2087001	1	AC CORD FOR CHE	
4	LG2181001	1	AC CORD FOR DEN	
5	ZA0423001	1	HEAD NOZZLE SEALS (INCLUDING 10PCS)	
6	ZA0424001	1	HEAD FILTER SEALS (INCLUDING 10PCS)	
(7)	ZA0310001	1	HEAD CLEANER STICK ASSY	
(8)	ZA0509001	1	GLYCEROL CLEANING FLUID 02 (INCLUDING 4 CARTRIDGES)	
9	ZA0492001	1	BLACK INK CARTRIDGES (INCLUDING 100PCS)	
10	ZA0495001	1	CYAN INK CARTRIDGES (INCLUDING 100PCS)	
11	ZA0498001	1	MAGENTA INK CARTRIDGES (INCLUDING 100PCS)	
12	ZA0501001	1	YELLOW INK CARTRIDGES (INCLUDING 100PCS)	
13	ZA0504001	1	PRINT HEADS HD002 (INCLUDING 10PCS)	
(14)	ZA0304001	1	INITIAL LIQUID ASSY	
(15)	LE0026001	1	FOAM EMPTY CARTRIDGE	
(16)	LE0025001	1	EMPTY CARTRIDGE	
(17)	UF9258001	1	COLOR TEST CHART CTC-001	
(18)	UF4600001	1	CONTRAST CHECK CHART TC-023	

REF.NO.	CODE	Q'TY	DESCRIPTION	REMARKS
(1)	LE2517001	1	OWNER'S MANUAL ASSY FOR GER (INCLUDING OWNER'S MANUAL(1-1), WARRANTY CARD AND MFL MANUAL(1-2))	
(1)	LE2518001	1	OWNER'S MANUAL ASSY FOR UK (INCLUDING OWNER'S MANUAL(1-1), 3 WARRANTY CARDS AND MFL MANUAL(1-2))	
(1)	LE2519001	1	OWNER'S MANUAL ASSY FOR FRA (INCLUDING OPERATIONS MANUAL(1-1), 2 WARRANTY CARDS AND MFL MANUAL(1-2))	
(1)	LE2826001	1	OWNER'S MANUAL ASSY FOR NOR (INCLUDING OPERATIONS MANUAL(1-1), 2 WARRANTY CARDS AND MFL MANUAL(1-2))	
(1)	LE2827001	1	OWNER'S MANUAL ASSY FOR BEL (INCLUDING 2 OPERATIONS MANUALS(1-1), WARRANTY CARD AND MFL MANUAL(1-2))	
(1)	LE2828001	1	OWNER'S MANUAL ASSY FOR NLD (INCLUDING OPERATIONS MANUAL(1-1), WARRANTY CARD AND MFL MANUAL(1-2))	
(1)	LE2520001	1	OWNER'S MANUAL ASSY FOR CHE (INCLUDING 2 OPERATIONS MANUALS(1-1), WARRANTY CARD AND MFL MANUAL(1-2))	
(1)	LE2829001	1	OWNER'S MANUAL ASSY FOR DEN (INCLUDING OPERATIONS MANUAL(1-1), WARRANTY CARD AND MFL MANUAL(1-2))	
(1)	LE2830001	1	OWNER'S MANUAL ASSY FOR SPA (INCLUDING OPERATIONS MANUAL(1-1), 2 WARRANTY CARDS AND MFL MANUAL(1-2))	
(1)	LE2831001	1	OWNER'S MANUAL ASSY FOR ITA (INCLUDING OPERATIONS MANUAL(1-1), WARRANTY CARD AND MFL MANUAL(1-2))	
(1)	LE2832001	1	OWNER'S MANUAL ASSY FOR SWE (INCLUDING OPERATIONS MANUAL(1-1), 2 WARRANTY CARDS AND MFL MANUAL(1-2))	
(1-1)	LE2535003	1	OWNER'S MANUAL FOR GER	
(1-1)	LE2505004	1	OWNER'S MANUAL FOR UK	
(1-1)	LE2505005	1	OWNER'S MANUAL FOR FRA	
(1-1)	LE2505007	1	OWNER'S MANUAL FOR NOR	
(1-1)	LE2505008	1	OWNER'S MANUAL FOR BEL/NLD	
(1-1)	LE2506008	1	OWNER'S MANUAL FOR BEL/CHE	
(1-1)	LE2505010	1	OWNER'S MANUAL FOR CHE	
(1-1)	LE2505013	1	OWNER'S MANUAL FOR DEN	
(1-1)	LE2505015	1	OWNER'S MANUAL FOR SPA	
(1-1)	LE2505016	1	OWNER'S MANUAL FOR ITA	
(1-1)	LE2505026	1	OWNER'S MANUAL FOR SWE	
(1-2)	LE1051003	1	MFL MANUAL FOR GER/UK/FRA/BEL/NLD/CHE	
(1-2)	LE1051007	1	MFL MANUAL FOR NOR/DEN/SPA/ITA/SWE	

REF.NO.	CODE	Q'TY	DESCRIPTION	REMARKS
(1)	LE2507003	1	CARTON, BROTHER MFC760 FOR GER	
(1)	LE2507004	1	CARTON, BROTHER MFC760 FOR UK/CHE	
(1)	LE2507005	1	CARTON, BROTHER MFC760 FOR FRA	
(1)	LE2833001	1	CARTON, BROTHER MFC760 FOR NOR/BEL/NLD/DEN/SPA/ITA/SWE	
(2)	LE2288001	1	STYROFOAM ASSY	
(3)	LE2565001	1	POLY-ETHYLENE BAG FOR MACHINE, 900X850	
(4)	LE2291001	1	CARTON, FOR MANUAL	
(5)	LE2292001	1	PAD, 320X240	

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